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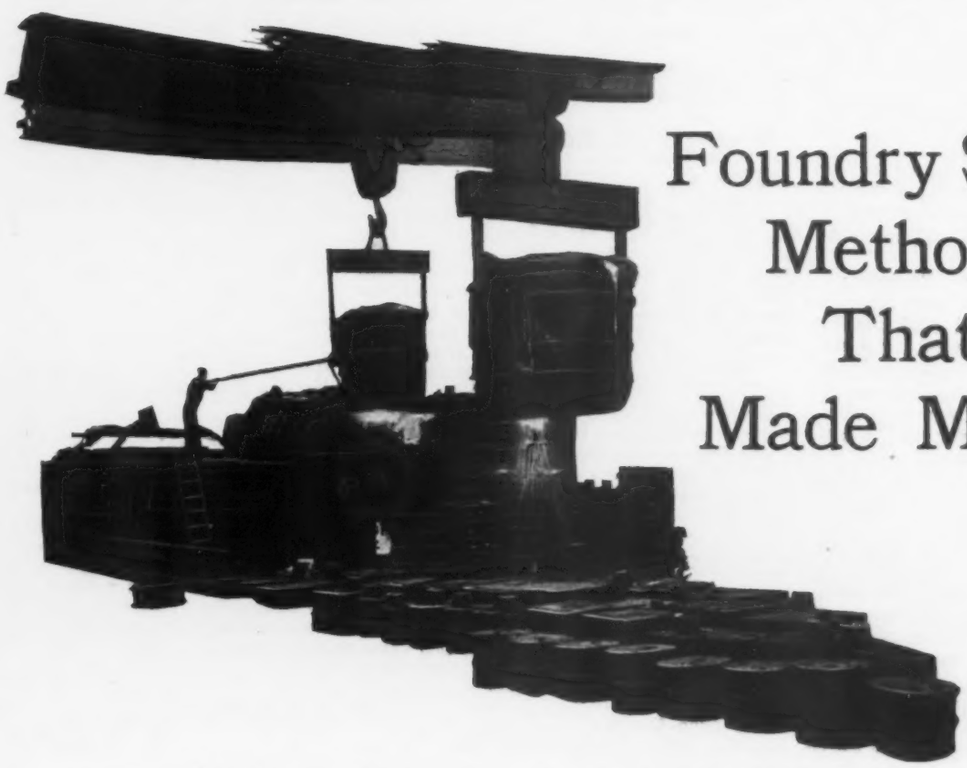


Foundry Sales Methods That Made Money

Service to Customers Often the Chief Salesman—Advertising Little Used by Gray Iron Foundries

WHERE labor is employed, efficiency is best if employees are contented. But no business that has goods to sell, whether merchandise or castings, can grow or prosper with a contented working force alone. It must have satisfied customers. A definite plan for merchandising is essential to the business success of a foundry; which means, essential to building a steady clientele.

An illustration of the application of thought to the problem of getting and holding desirable business is given in the following analysis of the operations of a well-managed foundry. It employs 200 men and produces medium size castings in large quantities.

Results of Planning

This foundry has operated through periods of good and bad business conditions at or near capacity. The schedule showed orders ahead for several months' production at capacity. Specifications of customers were adhered to closely through laboratory control of materials. Schedules carefully planned assured deliveries of castings when wanted and in the quantities promised. Close inspection upheld the quality of castings delivered to customers.

The bulk of production consisted of castings weighing 50 and 75 lb. Orders from ten representative manufacturers engaged the entire capacity of the foundry for months ahead. When orders fell off in one or more lines, it was always possible to fill the gap with others.

A stable working force was maintained, with all the advantages accruing therefrom. The reputation of this firm had created a demand for its service. Continued increase in demand had resulted recently in plant expansion. The business showed substantial profits from operations, despite keen competition.

It was evident that this foundry gave the buyer exactly the type of casting he wanted on promised delivery dates. This policy explained why the same buyers continued to place their entire requirements with this one plant.

How Sales Planning Helps the Foundry

The management of the foundry had a definite plan of operation. It had studied the available field for its operation in the light of its equipment and had determined on the most profitable line. Its service to buyers held business once acquired. An analysis of the steps taken in arriving at its plan of operation follows:

1—Consultation of Past Records for

a—Sales by years and at various periods within the year.

b—Buyers and their location.

1—Type and quantity of castings bought.

2—Time of buying.

c—Types of castings produced.

1—Analysis of costs to determine more profitable types.

II—Study of Plant and Equipment for
a—Type of castings best suited to it.
b—Quantity in which castings can be produced.
III—Possible Markets for Castings
a—Extent.
b—Buyers to be appealed to.
c—Method of securing business.
d—Effect of competition.

How the foregoing analysis was used is shown by the following summary:

Type of Casting:—Castings weighing 50 to 75 lb. comprised practically the entire output of the foundry. This type of casting fitted the equipment and could be most profitably produced.

Buyers:—Ten companies requiring medium size castings employed the entire capacity of the foundry. One buyer's requirements were such that quantities of castings could be manufactured for finished stock. Thus the period of low demand from the other buyers was bridged by placing in production advance requirements of this buyer.

Holding the Business:—Specialization on one type of casting permitted high-quality production. A reputation for living up to promises secured contracts from large consumers of castings for their entire requirements for months in advance. Prices were in most instances somewhat higher than competitive prices for medium size work.

How Business Was Secured:—An executive of the foundry was assigned to negotiate sales and follow up castings in the shop of the buyer. He was experienced in foundry work, knew the possibilities of his particular foundry, and could advise buyers on the design of castings for most economical production. A number of consumers of medium size castings in large quantities were approached from time to time and a bid made for their entire requirements. Proposals were based on quality output, deliveries as scheduled, and a reputation for living up to promises.

Combining Sales and Production:—Promises made at time of sale were fulfilled. The effective functioning of the foundry to this end was brought about through the following means:

There was close cooperation among the several departments. Laboratory control insured metal conforming to specifications and the required machining qualities. Production control insured delivery of castings on schedule. An effective cost system enabled the management to know costs and to be guided thereby. In making sales or promises of delivery, the representative required accurate knowledge of existing schedules and ability closely to gage the foundry's ability to handle the order tendered, as the customer desired.

Orders that are continued at the foundry's price from year to year demonstrate the effect of these efforts. This management had overcome the all-too-prevalent practice of accepting parts of orders, farmed out to a number of foundries, to insure delivery when wanted. Excellent profits resulted. The recent acquisition of an additional plant testifies to the spread of this foundry's reputation.

Profits from Selling Methods

"PLANT economics?" said a foundryman the other day. "Oh, yes. We're always keen for ideas to bring down our casting costs. But for a long time we concentrated on production methods, saving a little here and there and neglecting selling costs pretty much. Recently, however, we heard of a new plan used by a Western foundry in selling castings, and now we're making a nice net profit out of that idea."

Executives who are responsible for foundry profits will be glad to read the accompanying analytic study of selling methods in various foundries, made by the Policyholders' Service Bureau of the Metropolitan Life Insurance Co., New York. It contains a number of practical suggestions of immediate value.

Sales Policies of Foundries

A foundry with a reputation for delivering castings on schedule is frequently the recipient of competitive business, even at prices slightly higher than those quoted by competing companies. Assurance of continuing this policy is entirely dependent on close cooperation of the several departments of the foundry.

Coordinating the Activities of Several Plants

Several plants of one company were tied together through a central board of control. This company marketed its product under its own trademark. The board of control was made up of a representative from each plant, the sales director, and the administrative officer of the company. Its duty was the correlation of the various plants and the activities of the sales department.

At the periodic meetings of the board of control, representatives with their schedules and a knowledge of plant possibilities discussed proposed activities to increase sales demands. Sales plans were considered from both production and sales standpoints, resulting in recommendations of necessary changes, in order to use available plant more adequately.

Linking Sales and Production in Individual Plants

The sales representative of the foundry must be guided by the production schedule in making delivery promises. The production department has the duty of living up to its schedules. An adequate production control system will provide for meeting schedules and will give salesmen valuable information in gaging their promises of delivery.

Practices in this respect followed by several companies are outlined in the following quotations from foundrymen who have written the Policyholders' Service Bureau on this subject:

1—. . . . We solicit only that class of work which we can turn out most satisfactorily; in fact, we specialize on small gray iron castings. . . .

2—. . . . After the jobbing foundry has built up its volume to about 85 to 90 per cent of its capacity, it has reached the danger line. I say the danger line, because work taken in that overcrowds or makes it necessary to use this extra 10 to 15 per cent is taken in at the expense of better service to those customers you already have . . . .

3—. . . . We do a general jobbing foundry business . . . . chiefly . . . . for machines composed of large cast iron parts. In soliciting orders for jobbing work, we naturally try to secure orders for material of the same general class rather than for small duplicate parts of the character known as "Production Work," for which we are not equipped . . . .

4—. . . . Our sales department is getting service from the production department and order department as follows: Reports of shipping dates; Promise dates; Kind of pattern equipment furnished; A man to follow up the product in the machine shop of the customer.

Consideration of equipment available, and control of operations assuring proper functioning of this equipment, are fundamentals in estimating possibilities. Pamphlet No. 3 of the Metropolitan foundry series discusses production control in the foundry and tells of means of getting castings out on schedule. [See THE IRON AGE, Jan. 15, 1925, page 193].

Who Sells the Castings

The foundry's contact with the buyer of castings is made through various agencies. In the smaller foundries an executive gives part of his time to developing business among old customers and new prospects; otherwise, the foundry's outlet for its product is through some general commission agent. The medium size and larger plants tend toward specialization of sales representatives.

Ten of the foundries studied, that manufacture castings for incorporation in the product of another company, had sales organizations. Four of these were jobbing foundries and the remaining six were production plants. The jobbing foundries had one or, at most, two salesmen.

Several jobbing units had no sales staff and depended for business largely on their reputation of past performance. Others had the bulk of their product taken by one manufacturer and relied on occasional

miscellaneous orders to fill in the remaining capacity.

Among production plants particularly, the service man was the contact between the foundry and the buyer. In some cases he was called sales engineer.

Where there was a service man, he was a trained foundryman, knew the possibilities of his foundry, and had the ability to see that work taken was brought in at the proper price. He advised the buyer on the design of patterns best suited for economical production in the foundry and machine shop, followed up castings in the buyer's shop to assure the foundry supplying the right qualities in the castings and, in every way, worked toward securing and holding business.

A foundry manufacturing cylinder blocks for several companies employed no sales people but had a service man. Working constantly among the foundry's clients, the service man was able to keep the foundry's output in line with the needs of the machine shop, to make suggestions for facilitating production of castings, and to keep close contact with all of the buyers of the foundry's products.

Thirty was the total number of companies for which one production plant turned out castings. No sales force, as such, was employed. However, here again two service men, constantly going among these plants, kept them sold.

Selling Agencies

Commission agencies, salesmen on the payroll of the foundry and service men are the principal agents through which foundries sell. In many cases the last two are combined in one individual and the idea of service is made the principal selling argument. Opinions on the efficacy of the various methods differ.

One manager says:

> Personal contacts, backed by high quality iron, workmanship, with service aimed at our customer's best interest, are the bases of our sales.

Describing practices in another plant, the following comment was made:

> . . . in addition to a solicitor for new work we have one representative who looks after the running jobs in order to keep them going right . . .

Another says:

> We believe in calling on present customers about once a month with the intention of checking up on castings, i.e., a sort of service call is a very effective way of holding their business. . . .

Regarding commission men, some comments follow:

1—We maintain an office in ————, being represented by a sales engineer on commission basis.

2—Most of our sales are made through sales agents. . . . They sell for us on a commission basis.

3—We have had dealings in both ways and found that the salaried employee was more apt to look out for the interests of the foundry (contrasting the commission man and the salaried representative).

General practice among the medium size and larger plants tends toward the foundry-trained, salaried employee. It is found that he is available for service work among the buyers and proves a more intimate contact with the foundry's client.

How Sales Are Made

Advertising in various journals, particularly trade journals, and circularization through the mail are methods used to supplement personal solicitation in securing business. However, compared with steel and malleable foundries, gray iron plants give relatively little attention to advertising as a business getter.

Specialization is an appeal used in many cases to develop desirable business. A good example is given in the practices outlined by one foundry:

> Ours is a foundry which specialized as a job shop prior to three years ago, on work requiring special iron and special attention in molding. Originally, we had mostly single-piece casting orders but, due to quality of product, we now receive quantity orders for the same class of work formerly handled on a limited basis. We are still making our appeal to the users of a class of castings who cannot be served by the ordinary commercial jobbing foundry. . . . We find it less difficult to sell in a special field than to sell the ordinary run of work . . . due to the fact that governing prices . . . . are made by many small foundries without an adequate cost system. . . .

Another foundry, realizing the value of specialization, says:

> Our strong talking points are the appearance of our castings, high strength, and heat resisting qualities.

Service

What is service? On several occasions during our

survey foundry managers have referred to their sales in the following terms:

> I get the B..... Co. business, although I know my price is in excess of competitor's.
>
> The C..... Co. ask for castings made to certain specifications. I conform with their wishes, know what I am giving them, deliver the goods when promised, and get my price.

Some other angles of the subject will illustrate the foundry's activities in helping clients and keeping them:

> 1—We have aimed to sell our customers not only castings but also service. . . . . which consists of keeping in touch with the customer and advising him as to better pattern equipment. . . . We also serve our customers, especially the smaller ones, in the way of engineering advice, production methods and machining methods.
>
> 2—Have close inspection of castings and ship nothing but quality castings. . . . .
>
> 3—The service we render on castings is engineering advice, change of design for strength, making the patterns for special cases when the amount of business justifies it, replacement of any defective castings, etc.
>
> 4—Castings are sold on a service basis. We take particular pains to clean them up well . . . . and deliver the castings on the date promised . . . . We also insist upon the customer furnishing us with suitable pattern equipment for economical foundry production and this saves the customer in the long run . . . . We find that this demonstrates to the customer that we have a real interest in the product which we are sending from the foundry to his plant, and by this he is kept in the most personal contact with our foundry and seems more willing to give us adequate pattern equipment to help us solve the production problems always present . . . .

Critical scrutiny of all castings before shipment was a form of service employed by 14 of the foundries studied. Every effort was made to deliver castings conforming as closely as possible with the customer's requirements and to eliminate all defective work before shipment.

Emergency requirements were handled by a special group of molders in several plants. This form of service held to a minimum interruption of production schedules and fulfilled the buyers' special needs. Orders for this type of work were sufficient to warrant four men in one plant of about 190 employees. These men made repair parts for the foundry, and were engaged on experimental work, in addition to caring for special wants of the foundry's clients. To quote one foundry on this subject:

> To serve our customers . . . it is sometimes necessary for us to accept work for which we are not properly equipped . . . Such cases do not constitute 1 per cent of our sales.

Although this type of work occupies a small place in the total production of a foundry, it frequently represents very important requirements of the buyer of castings.

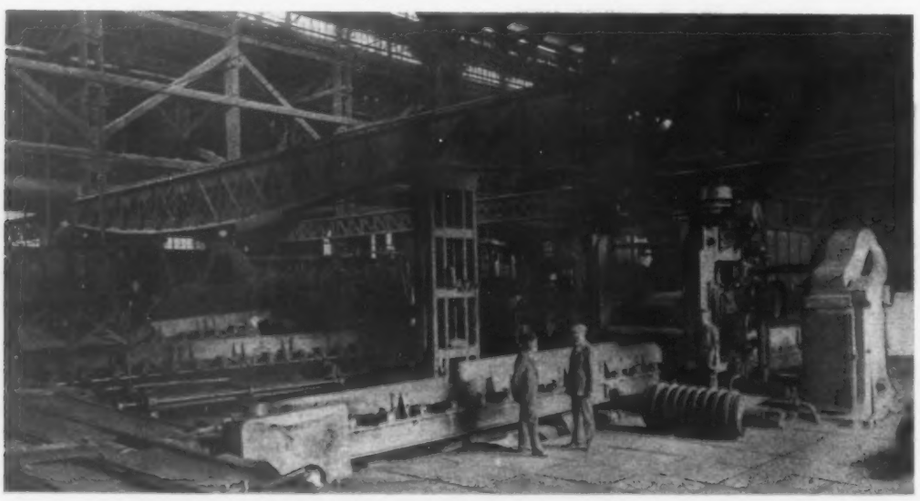
Going After Sales

Instead of waiting passively for buyers, a manufacturer who seeks to make the most of his opportunities adopts aggressive sales methods. Copper was sold for many years in a routine manner to buyers who inquired for it and no particular effort was made to increase its general use. Realization of the potential market for the product through the development of new uses and more widespread knowledge of the advantageous properties of the metal prompted the work of the Copper and Brass Research Association.

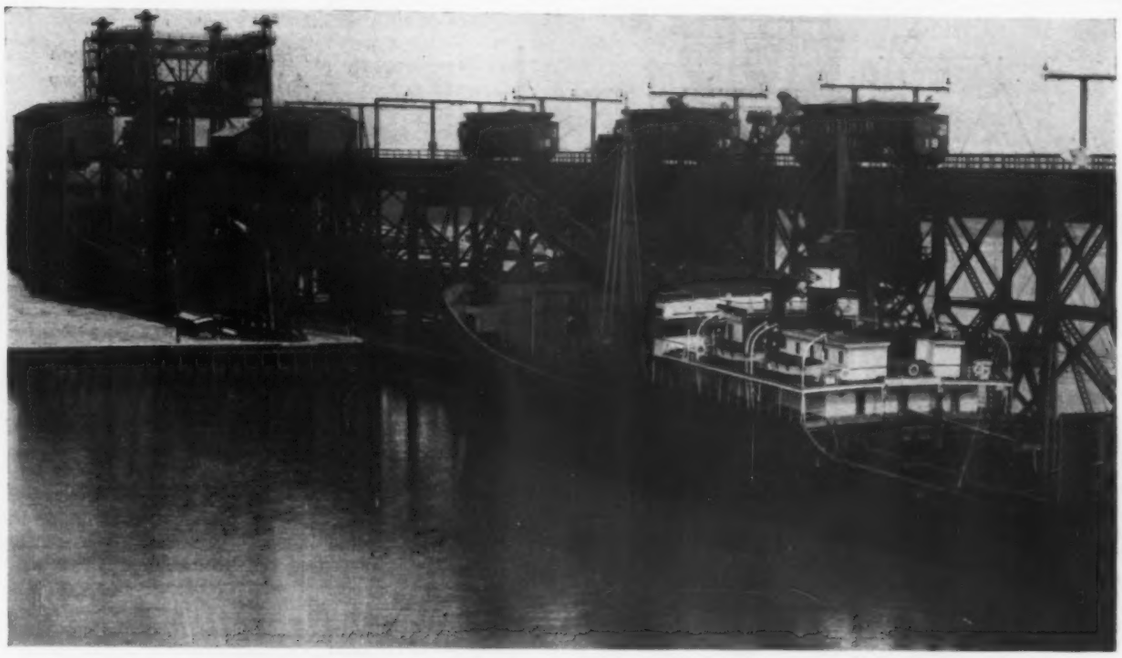
What have been the results? In 1924 about 1,500,000,000 lb. of copper, or more than one-half the world's total production, was consumed in this country.

A foundry journal recently reported a decrease in the number of gray iron foundries in the United States. How much was contributed to this decrease by faulty sales methods or lack of sales effort is unknown. But our survey has demonstrated the need among gray iron foundries of more aggressive sales methods. Some active managers have developed or taken over new products using gray iron castings; others, desiring to utilize their equipment to greater extent, have put on aggressive campaigns to secure new business much after the fashion of the malleable and steel foundries.

Foundry managers and owners are prone to lean heavily on the production side of the business, often neglecting sales requirements. This is due, no doubt, to their training being practically entirely from the production standpoint. Too much emphasis cannot be placed on the need of gray iron foundries to study the sales side of their business and to adopt a definite plan for merchandising the foundry's product.



THREE-HIGH rolling mill at Ozd, Hungary. Of special interest are the type of transfer table, the shape of the crane runway girders and the character of the post supporting those girders. This is in one of the plants of the Rima Steel Corporation which, as announced some weeks ago in our columns, has floated a bond issue in the United States this year. The company has capacity for 200,000 tons of pig iron, 300,000 tons of open-hearth ingots, 250,000 tons of finished steel and 50,000 tons of special steel products, such as wire nails, cold rolled strip, shovels, axes, horseshoes and a wide variety of other materials of this character. It holds a leading position in the iron and steel production of Hungary, being credited with about two-thirds of the total output.



Loading Coal for Ocean Shipment

New Handling Plant at Virginia Port Increases Capacity to 5000 Tons an Hour—Car Dumpers and Pier Structure Are Unique

THE coal handling plant of the Virginian Railway Co., recently placed in operation at Sewalls Point, Va., challenges attention not only because of the claim that it has greater capacity than any other terminal in the world but also because of the new features which it incorporates.

The Virginian railroad, the principal business of which is transporting coal from the New River and Pocahontas fields, had previously operated a modern ship loading plant of large capacity at its No. 1 coal pier at Sewalls Point. With the installation of the new equipment on its No. 2 pier, the shipping capacity at this terminal has been more than doubled.

The road is equipped with the largest types of locomotives and is using many coal cars of 100-ton capacity. An electrification system is now being installed to assist the locomotives in the power demands of the heavy hauls over the grades of the mountain districts so that the load capacity of the train can be further increased.

Loading Equipment Moved from Hatch to Hatch

The system of dumping coal direct from car dumpers into hatches of ships employed along the Great Lakes is not in common use along the seaboard. With the Great Lakes system the ship is moved along the dock, bringing the hatches in line with the car dumper. Because of the tides and the type of construction of ocean vessels a direct loading system that requires the moving of the ship during loading after it is once tied to the dock is not regarded as so well adapted for an ocean loading pier as the system with which the boat is kept moored and the loading equipment is moved from hatch to hatch. The latter system now used on the new Virginian railroad pier requires the use of a conveying system between the car dumpers and the ships.

New features in coal-handling equipment are found both in the car dumpers and the pier structure. The arrangement of the pier is shown in the plan view, Fig. 1. Fig. 2 is a view through section *AA* of Fig. 1 and shows the arrangement of the loading and trimming towers. Fig. 3 is a view through section *BB* of Fig. 1, showing the location of the car dumpers, elevating pan and other details. The pier is equipped with two double car dumpers, as shown, each capable of dumping one 130-ton coal car or two 65-ton cars in tandem at the rate of 30 dumps per hour and elevating the coal through a lifting pan to the height of the transfer cars on top of the pier. There are also four motor-driven self-dumping transfer cars each of 130-ton capacity, four motor-operated movable loading and trimming towers, two on each side of the pier, and each with a capacity of 2400 tons per hour, and one 100-ton capacity elevator for taking transfer cars from the yard level to the pier top in case of repairs.

The pier structure is 1074 ft. long, 86 ft. wide and 74 ft. 6 in. above the mean sea level. The maximum height to the top of the structure from water level is 138 ft. 10 in. Between 11,000 and 12,000 tons of steel was required in building the pier, 6000 tons of which is in the structure and over 5000 tons in the mechanical equipment. The foundations provide for a maximum future depth of water alongside the pier of 40 ft. below mean low water but the slips and approach to the channel are dredged to a depth of 35 ft. at the present time. The "berthing" capacity of the pier is six ships of an average length, three on each side.

While the theoretical capacity of the pier is 30 dumps of 130 tons per hour for each dumper, or a total for the pier of 7800 tons per hour, that capacity is not obtainable as the bulk of the road equipment at the present is cars of 100 and 60 ton capacity. However, it is estimated that with the dock full of ships 5000 tons per hour is not beyond the capacity of the present road cars and dock equipment.

One Operator Controls the Car Dumper

The operation of the plant is as follows: A switch engine pushes the loaded cars over a hump into the

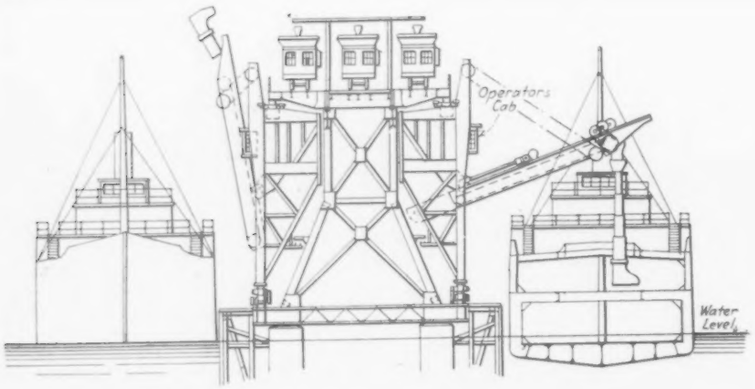


Fig. 2. Section Through AA of Fig. 1, Showing Arrangement of Traveling Loading and Trimming Tower. A feature is the provision of a bin of 130 tons capacity, which takes the place of rows of stationary bins usually provided. One operator controls all motions of the tower

loaded car receiving yard and they are dropped by gravity over the scales to a "Barney" of the disappearing type which pushes either two 60-ton cars or one large car up on the cradle of the car dumper. The car dumper is then elevated and dumps the coal through an intervening receptacle into a steel container or lifting pan which is elevated and discharges the coal into the 130-ton conveyor cars on top of the pier. The empty cars are pushed off the cradle of the dumper by loaded coal cars, the empty cars running by gravity to a kick-back and from there to the empty coal yard. One operator controls all motions of the car dumper.

The loaded conveyor cars operate under their own power on top of the pier only and dump into the pockets of the traveling loading towers on either side of the pier, after which they return on a middle track to the car dumpers for reloading with coal. The tracks are so arranged on top of the pier that either dumper can load on either side of the pier.

The coal from the 130-ton pocket of the traveling loading tower is fed on a 60-in. steel apron conveyor operating in the boom of the tower and is conveyed to a telescopic chute at the end of the boom through which it flows by gravity over a curved surface of the trimmer or is distributed by the high-speed belt of the trimmer into the hold of the vessel. The telescopic chute is quite flexible as it is controlled by hoists for the fore and aft movement as well as across ship swing and can be placed almost at will.

The outstanding feature of the car dumper is a combination of the cradle with the lifting pan in such a manner that the weight of the cradle counterbalances and assists in elevating the coal to the pier level and the weight of the lifting pan returning assists in turning over the cradle and cars. With this combination the same mechanism hoists the coal in the lifting pan and turns over the dumper. This arrangement is said to make a smoother curve of the electric power required and reduce the power consumption.

The important new feature of the pier structure is the provision of the bin of 130-ton capacity on the traveling loading tower. This one bin of the same capacity as the transfer cars takes the place of the rows of stationary bins usually built into the pier structure so that bins in the pier itself are eliminated. One operator controls all motions of the loading tower.

Power Trimmers a Marked Advantage

The use of power trimmers to stoke coal under the hatches without hand labor is regarded as a marked advantage as it increases the pier capacity, the boats

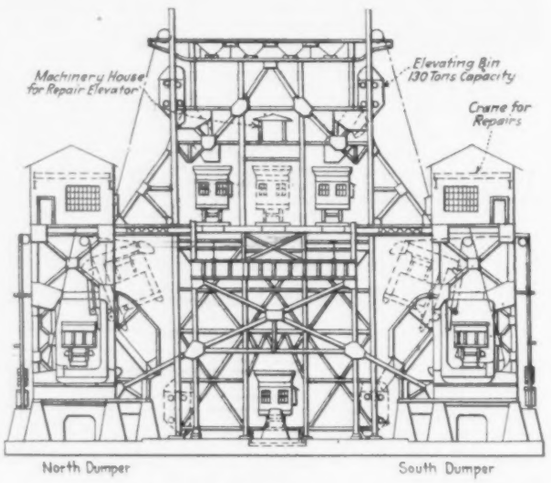


Fig. 3. Section Through BB of Fig. 1, Showing Arrangement of Car Dumpers, Elevating Bins and Position of Transfer Cars While Being Loaded. The combination of cradle with the lifting pan is a feature of the car dumper

are more evenly loaded, and both the loss due to breakage and the cost of loading are reduced. In connection with the loss due to breakage it is pointed out that 80 per cent or more of the cargo does not pass over the trimmer belts but is distributed entirely by the telescopic chute of the conveyor, reducing the breakage as compared with gravity loading and hand shoveling. On the other hand there is some increase of the breakage of the coal thrown by the trimmers but it is

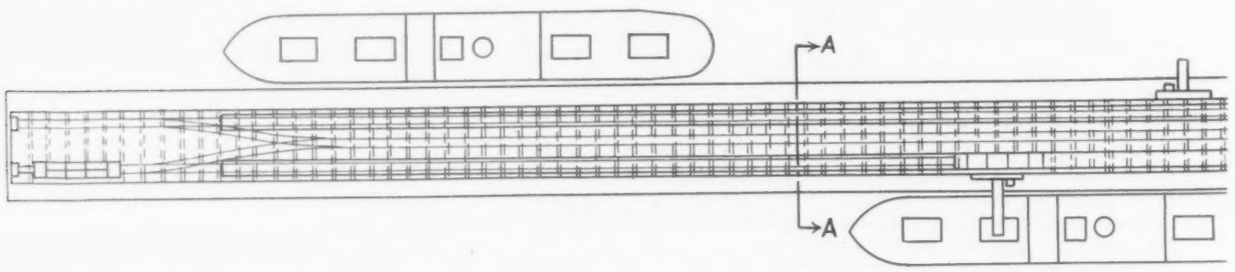


Fig. 1. Plan of Coal Handling Plant Recently Placed in Operation at Sewalls Point, Va., by the Virginian Railway Co. The arrangement of the car dumpers and track is shown at the right (on the opposite page). The four motor-operated loading and trimming towers, two on each side of the pier, are movable along the steel trestle, from hatch to hatch. The coal is conveyed from the car dumper to loading towers by self-dumping transfer cars

claimed that the net result is the marked reduction in the breakage as compared with the gravity loading and hand trimming.

The motors are operated by direct current at 550 volts from a substation connected to the power line of the Virginian Railway & Power Co.

The car dumpers, haulage system, transfer cars, loading towers and elevators were designed and constructed by the Alliance Machine Co., Alliance, Ohio, under original plans and patents controlled by the Hulett Engineering Co. which is associated with the Alliance company as consulting engineer.

Panama Cast Iron Pipe Awarded to American Maker

WASHINGTON, Aug. 11.—Submitting a bid of $46 per net ton, delivered at Cristobal, the United States Cast Iron Pipe & Foundry Co., Birmingham, last Thursday was awarded the contract for 2200 tons of 30-in. cast iron pipe for the Panama Canal. The bids were opened on the day previous for the third time. The successful bidder promised delivery within 60 days after the date of award, the total cost to the government being $101,200. It is understood that the lowest rail-and-water rate from Birmingham to Cristobal is $9.53 per ton. The second bid made by this company was $49, delivered, in 60 days, while the first bid it made was $54.40, delivery to be made in 80 days.

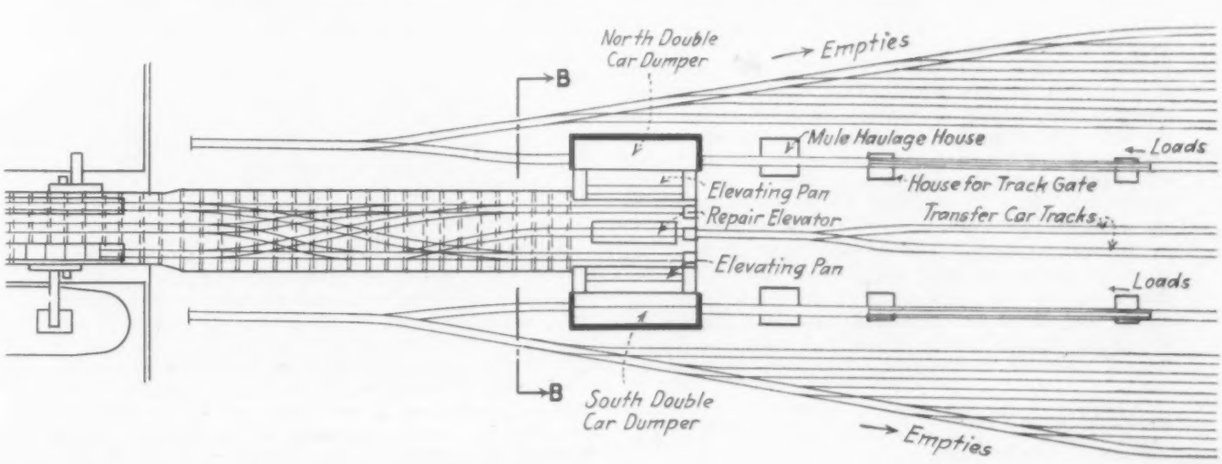
The award went to the domestic producer as the result of calculation of a theoretical tariff duty of 20 per cent on the exportation value, port of origin, added to the third bid of the Pont-au-Mousson works in France, which was $41.75, Cristobal, brought the unit figure close to $47 a ton. It is understood that the duty was fixed at slightly under $5.25 per ton. The second French bid was $47, Cristobal, but it is said that after the tender was opened a representative of the French interests explained that this latter bid took into account a theoretical duty of $6 per ton. Because of the complication arising the third set of bids was requested. Other bidders at the third opening were the American Casting Co., Birmingham, $6.50 per lineal foot; Warren Foundry & Pipe Co., Phillipsburg, N. J., $53.50, and the Standard Cast Iron Pipe & Foundry Co., Atlanta, Ga., $53.50, each being a delivered price.

LeMoyne Steel Co. Is Now the Armstrong Steel Co.

P. A. E. Armstrong, who was for the last eight years vice-president and general sales manager Ludlum Steel Co., Watervliet, N. Y., has bought the LeMoyne Steel Co., Pittsburgh, the name of which has been changed to the Armstrong Steel Co. He is president of the company. Former owners of the company, H. A. Kuehn and D. W. Kuehn, are also stockholders and vice-presidents of the new company, while W. H. Norris, general manager under the old management, continues in that capacity. The plant of the company, which is located at Monongahela, Pa., was built in 1918 and is modern and well equipped. To the original equipment there is to be added a 16-in. bar mill, grinders and bar straighteners. Mr. Armstrong estimates that the capacity of the plant will be triple that at its founding.

While associated with the Ludlum Steel Co., Mr. Armstrong was active in the field of rustless steel and patented many of the widely used steels. With his own company he proposes to go further into this field and already has developed steels having analyses differing materially from those hitherto employed. He also has worked out a rustless mechanically-plated steel. Another development has to do with automobile valve steels having an analysis quite different from that heretofore employed. Mr. Armstrong also announces that he has produced a new analysis for cutlery steel. Introduction of these lines will supplement rather than replace alloy and high-speed steels, which the company will continue to produce. The company will also sell alloy tool and chisel steels.

View at the Side of the Loading Towers, Showing the Booms and Telescopic Chutes in Two Positions



Physical Chemistry and Steel*

Its Fundamental Rôle in Production—Alloy Steels a New Age in Metallurgy—Fuel, Refractory and Other Problems

BY DR. R. A. HADFIELD

PHYSICAL chemistry is the fundamental science of steel making. Most of the classical studies in physical chemistry have, of necessity, been confined to a field of activity in which the severely high temperature conditions of steel making do not obtain. On the other hand the numerous factors, sociological as well as material, which must influence any industrial operation have helped to confine the progressive developments of the art of melting and refining ferrous metals mainly to methods which may be termed, at any rate to some extent, empiricial. However, it should be recognized that the great developments of Bessemer, Siemens, Gilchrist, and Thomas were based on a reasoned structure of chemical and physical science, and not mere chance discoveries.

A New Age in Metallurgy

During the last two decades there has arisen what may almost be described as a new age in metallurgy, that of the alloy steel, and its rapid strides have been no doubt in a measure due to many series of systematic researches and the better understanding of a domain of science that is governed by the laws of physical chemistry. This new field of progress is so important because of the remarkable properties obtained. By the development of the use of alloy steels the engineer has been provided with material permitting progress as to design and utility, hitherto undreamed of. To instance but a few: There is the wide adaptability of the nickel chromium steels, by means of which under suitable heat treatment almost any desired degree of strength and ductility may be obtained; manganese steel with its extraordinary toughness and extremely high wearing properties; the magnetic value of silicon steel; and lastly the more recent appearance of many valuable non-corrodible acid-resisting and non-scaling steels, some of which retain their strength at high temperatures. In the manufacture of these steels new problems become opened up for the steel maker and a much more complicated set of reactions takes place than with ordinary carbon steels.

The furnace in which the refining of steel takes place is really an appliance which lends itself to scientific operation since the weights and composition of the materials used and the concentration of essential constituents of the bath and slag are capable of fairly accurate measurement, and the thermal conditions are controllable within limits. The basic reactions of steel manufacture depend upon some chemical reaction of oxidation, reduction or some reversible displacement in a somewhat viscous liquid phase, and the resulting changes are largely influenced by temperature conditions. The quantitative course of many of the reactions are not known in any exact terms, though means of judging approximately the course of the various operations, aided by chemical analysis, are known to those skilled in the art.

To such an extent has advance been made in the study of the rationale of the free energy of chemical reactions, and the significance of the equilibrium constant, that there are now definite means known for attacking from a purely theoretical basis the fundamental reactions in question. But there remains one serious disability to the successful prosecution of the task, and that is a lack of the essential physical data at high temperatures, specific heats, heats of reaction, equilibrium constants, the determination of which involve difficult and extensive experiment requiring a high order of skill. It is to the pure scientist that the steel maker must look for the determination of these needed constants.

Physical Condition of Molten Steel

There is another factor in steel manufacture influencing the process much beyond the order of complexity found in those reactions usually studied in the classical researches—the physical condition of the molten steel. The point is perhaps well illustrated by reference to the specific purifying action of manganese, apart from its deoxidizing action, in the manufacture of high-grade steels in the open-hearth furnace. It cannot be denied that physical factors are of supreme importance in molten steel. Such are primarily the viscosity or fluidity of the slag and steel, and surface tension effects which determine the important question of clarification from non-metallic inclusions.

Fuels and Refractories

Passing allusion may be made to those allied branches of steel making, auxiliaries which yet play an important part in the success and economy of steel plant operation, the fuel and refractory materials used. The basic science of these is again physical chemistry. The study of the equilibria in gaseous reactions has not only enabled gas producer operation to be placed on a scientific basis, but has also pointed out directions in which a greater availability may be made of the hitherto waste gases of iron and steel works, in particular to the use of blast furnace and coke oven gas, both in the open-hearth furnace and the gas engine. Recently it has been shown that with a moderate injection of steam a mixture of 85 per cent of producer gas and 15 per cent of coke oven gas may be used in a regenerative furnace whereas the regeneration of coke oven gas alone is attended with serious loss of combustible, due to cracking of hydrocarbons in the checker chambers.

The future development of all classes of steel making processes must depend in some measure upon refractory material research, since the present temperature limits are governed by the properties of the materials used in the furnace structure. The same limits must also influence the possible use of oxygen, which has been shown, on purely theoretical grounds, to have certain advantages. These subjects alone are fields representing great possibilities in the future.

Constitution of the Alloy System

Cognate studies which are of some interest to the steel maker are those fundamental inquiries which are receiving increasing attention at the present time, the constitution of the binary, ternary and quaternary alloy systems. This of course opens up a field of future discoveries in which systematic study of the simpler combinations may be a prelude to the possible production of new types of steel. Work of this kind has been undertaken by the Ferrous Alloys Research Committee of the Institution of Mechanical

*Abstract of the introductory contribution to a general discussion on "The Physical Chemistry of Steel-Making Processes," held by the Faraday Society and the Iron and Steel Institute in London, June 8.

Engineers, among the projected studies being that of the constitution and physical properties of the binary alloys of iron in the absence of carbon. With the aid of Dr. W. Rosenhain, a beginning has been made at the National Physical Laboratory with the iron-oxygen system. The effect of oxygen in steel still remains one of the most important problems facing the metallurgist. One of the chief difficulties in carrying out these high temperature researches on materials of special purity is the construction of a furnace of suitable type and materials of adequate refractoriness to prevent contamination of the melt with impurities from the furnace linings. These studies of the influence of oxygen also open up the question of the future possible use of the vacuum furnace.

Some progress toward the solution of this problem has however been made during the last few years by the appearance of the high-frequency induction furnace, though the type so far developed does not permit of refining at least in a deliberate and controlled way. It enables, however, the use of vacuum, under which conditions a certain degree of refining appears to take place. So far has the application of the system been carried, that already fairly considerable commercial use of the high-frequency induction furnace has been made in the melting of non-ferrous metals and in particular high permeability alloys for use in marine cables.

The chief advantage of such furnaces lies in the fact that, provided the charge is of an electrically-conducting nature, which is of course the case with metals, the heat is generated actually in the material to be melted, which constitutes the secondary of the electrical system, a watercooled copper coil as inductor being carried round the crucible in which the melting is done. The principle of the method of heating would therefore appear to be ideal. It also permits of conservation of heat in the crucible by suitable lagging. Non-conductive materials can be dealt with by the use of conducting crucibles, in which case, the heat is generated in the crucibles and so transmitted to the charge. There is further a definite advantage over low and medium frequency induction furnaces in the fact that the magnetic leakages and power losses inherent in those systems are avoided. The high-frequency furnace can be controlled to give unity power factor.

In Great Britain furnaces have been installed for research purposes at the National Physical Laboratory and also at our University of Sheffield. The results obtained from experimental work with them will be looked for with interest.

Some of the Problems

Finally, while the character of individual researches must vary widely with the class of operation, the following are a few of the problems, which in addition to those mentioned above are of sufficiently general a character to apply to all, and are of importance to the science of steel making:

(*a*) The study of the equilibria of slag reactions, which are the key to the reactions in the steel.

(*b*) The mechanism of the origin of slag inclusions in steel, and means for their elimination.

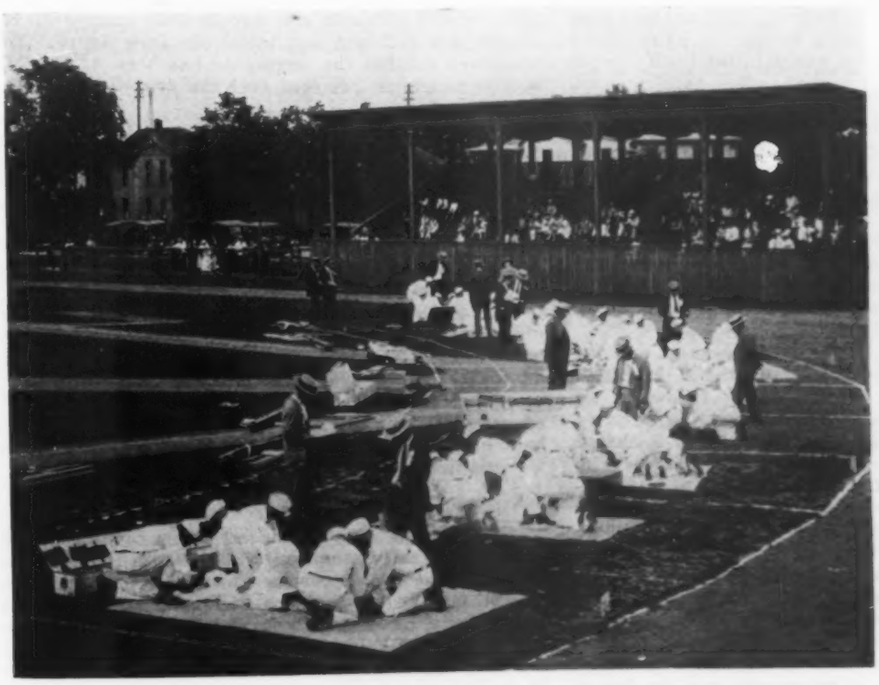
(*c*) The reactions between molten metals and the refractory materials constituting the hearths and banks of furnaces, and the conditions of penetration of combined and "adsorbed" oxide.

(*d*) The study of the physical properties of slag at high temperatures, viscosity, fluidity, surface tension.

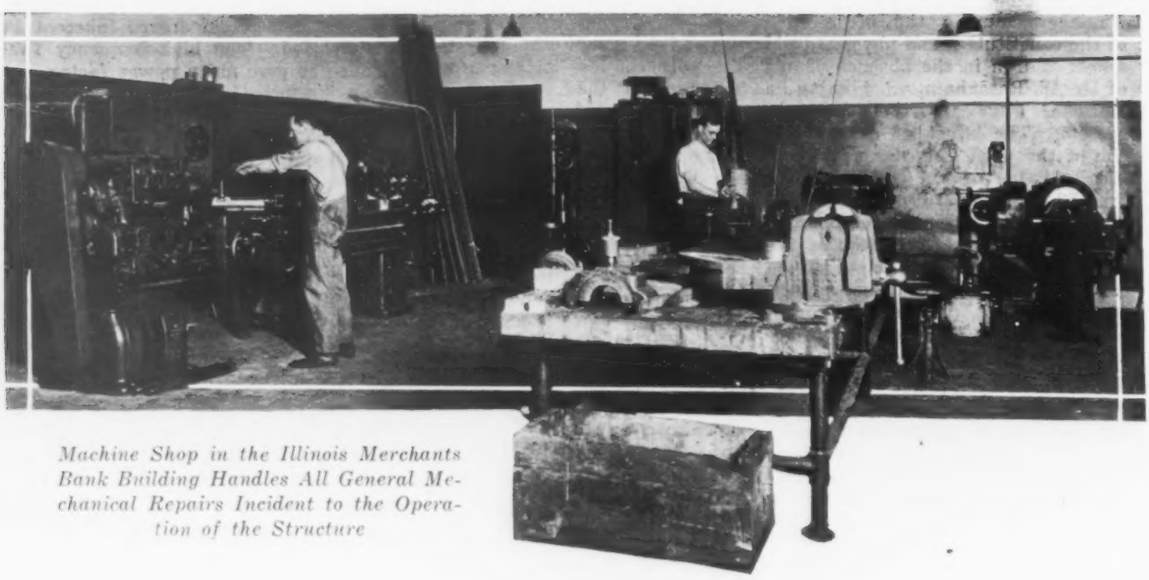
(*e*) A study of the mode of the cooling of ingots, which would throw light on the problem of segregation, and the physical properties of the segregates.

Further development of the work on the equilibria of the oxides, SiO_2,CaO, MgO, Al_2O_3, and the reducible oxides, FeO, MnO, undertaken originally by the Geophysical Laboratory of Washington for geological purposes would be of value in furthering the study of the subjects referred to in paragraphs (*a*), (*b*), (*c*), above.

The specific question such as, for example, the reduction of sulphur in acid practice, direct reduction of ores, and the use of oxygen, are problems in which any ultimate solution must depend largely on the development and application of the fundamentals of physical chemistry.



EFFICIENCY in first aid service was demonstrated by ten teams from various plants of the American Rolling Mill Co. in the interplant first aid meet held at Middletown, Ohio, on Aug. 1. The winning team from the Zanesville plant scored 395 out of a possible 400 points, while the lowest score made was 379. A team from the Ashland, Ky., plant recently won the Kentucky state championship, while a team from the Columbus plant captured first place in the Ohio State contest. The teams are shown competing under the watchful eyes of officials from the U. S. Bureau of Mines



Machine Shop in the Illinois Merchants Bank Building Handles All General Mechanical Repairs Incident to the Operation of the Structure

Machine Shop in an Office Building

Chicago Shop Makes Spare Elevator and Stoker Parts in Connection with Maintenance Work

THE towering skyscrapers which form the man-built canyons of the world-famous Chicago Loop, and the financial, garment making and other centers of New York, seem far removed from anything pertaining to the metal-working industry. Yet the modern business building with its army of office workers has a maintenance problem of considerable magnitude, the solution of which often requires a machine shop.

More than twenty years ago when the First National Bank Building was built in Chicago, W. L. Jackson, chief engineer, induced the management to install a machine shop. It was only after much hesitation and doubt that the owners were convinced of the wisdom of the move, but, once in operation, it did not take long for the shop to prove its worth and during its existence of more than two decades it has paid for itself several times over. Now many modern office buildings are equipped with machine shops and some of them, like the Otis Building, the Chicago home of THE IRON AGE, generate their own electric light and power.

Mr. Jackson, who was one of the pioneers in recognizing the need for repair shop facilities in the office structure, is now chief engineer of the Illinois Merchants Bank Building, one of Chicago's newest business buildings. This 20-story structure on La Salle and Clark Streets and Jackson Boulevard has 24 passenger elevators and much equipment which requires mechanical care and adjustment.

The machine shop is located in a basement and the equipment, which was purchased from the E. L. Essley Machinery Co., Chicago, consists of the following: an American Tool Works Co. 18-in. x 12-ft. engine lathe, an American 16-in. back-geared crank shaper, a Rockford Drilling Machine Co. 20-in. drill press, a Wilmarth & Morman Co. floor grinder, a Peerless Machine Co. high-speed hack saw, a Seneca Falls Mfg. Co. 9-in. x 4-ft. engine lathe, a Wisconsin Electric Co. "Dumore" post grinder, and a No. 306 Oster Mfg. Co. pipe machine. All of the machines have direct-connected motor drive.

The shop handles all general mechanical repairs required in the operation of the building. This means a great amount of miscellaneous work, such as repairs on elevators, repairs to stokers, the dressing of motor commutators, the renewal of pump rods, and the dressing of plungers. A considerable number of spare parts are manufactured to replace those which are broken. Many spare parts going into elevators are made. Similarly valve stems for large-sized hand valves are supplied by the shop. Steam-fitting and plumbing repair work and machining required in connection with electrical work are handled also.

Biggest July Building Volume on Record

Showing an increase over July of last year of more than 53 per cent, the building contracts reported by F. W. Dodge Corporation for last month aggregated $529,000,000. This is the largest July total ever recorded, but is 2 per cent below the June figure. For the seven months the aggregate has been $3,189,174,000, or nearly 20 per cent over the first seven months of 1924.

July showed the largest monthly total on record in New England and in the South-Eastern States. It was the highest July on record and the second largest monthly tonnage in the Pittsburgh district, having been exceeded only in March of this year. It was the highest July on record in New York and northern New Jersey and was far above last year's record in all of the other districts.

Residential construction, accounting for 42 per cent of the total, covered nearly $225,000,000. Public works and utilities followed with $72,743,000; commercial buildings, $67,166,000; industrial plants, $58,148,000, including a $30,000,000 power development in Ohio; educational buildings, $57,572,000, including large building projects for Harvard, Yale and Pittsburgh Universities.

What is said to be the largest steam condenser ever built was recently completed by the South Philadelphia works of the Westinghouse Electric & Mfg. Co. It will be installed in the new Richmond station of the Philadelphia Electric Co. It will be able to circulate nearly 150,000,000 gal. of water per day, or about half the daily consumption of Philadelphia. It stands nearly 30 ft. high, weighs almost 1,000,000 lb. and has a cooling surface of 70,000 sq. ft. More than 21 miles of tubes are included.

Tools of Plain Carbon Steel

Latest Recommended Heat Treatment Practice as Formulated by the American Society for Steel Treating

NEW recommended practice for the heat treatment of plain carbon tool steel has been issued by the American Society for Steel Treating. The society's recommended practice committee recently revised these data, issued in September, 1923, which the new data supersede. The sub-committee on tool steel was composed of four users and three manufacturers as follows: *Users*, W. J. Merten, chairman; C. I. Neidringhaus, W. H. Phillips, Du Ray Smith; *Manufacturers*, C. M. Johnson, J. Trautman, Jr., and J. P. Gill. The recommended practice as it now stands is as follows:

General.—This recommended practice covers the process to be followed in the heat treating of plain carbon tool steel.

Part I: Normalizing of Tool Steel Before Hardening

Operations.

1. Heating
2. Cooling

Heating.—Place steel in furnace so as to expose maximum surface area. Heat uniformly to a temperature above the upper critical point indicated in Table I, and hold at this temperature for sufficient time to obtain complete penetration of heat and for complete refinement of grain.

Cooling.—Remove from furnace and cool freely in air.

Table I—Normalizing Temperature and Carbon Range

Carbon, Per Cent	Deg. Fahr.
0.65 to 0.80	1475 to 1525
0.80 to 0.95	1475 to 1500
0.95 to 1.10	1500 to 1575
1.10 to 1.25	1575 to 1650

Cross Sections, Weight, and Time

Thickness of Largest Section of Unit	Weight of Unit in Lb. (Approximate)	Time of Heating in Hr. (Approx.)	Time of Holding in Hr. (Approx.)
Up to and including 1 in.	Up to 100	¾	½
Over 1 in. and including 2 in.	Over 100 and including 300	1¼	½
Over 2 in. and including 3 in.	Over 300 and including 500	1¾	¾
Over 3 in. and including 4 in.	Over 500 and including 1000	2¼	1
Over 4 in. and including 5 in.	Over 1000 and including 1500	2¾	1
Over 5 in. and including 8 in.	Over 1500 and including 2000	3½	1½

Part II: Heat Treating of Plain Carbon Tool Steel

Operations.—

1. Heating for quenching
2. Quenching
3. Tempering

Heating.—Heat the steel uniformly to the temperature indicated in Table II.

Quenching.—Quench from this temerature in water but do not cool below temperature of boiling water (212 deg. Fahr.).

Table II—Heat Treating

Carbon Range, Per Cent	0.65–0.80	0.81–0.95	0.96–1.10	1.11–1.25
Hardening Temperature	1550–1450 Deg. F.	1460–1410 Deg. F.	1390–1430 Deg. F.	1380–1420 Deg. F.
Quenching Medium and its Temperature	Water at 70 Deg. F.	Water at 70 Deg. F.	Water at 70 Deg. F.	Water at 70 Deg. F.

Tempering. — Reheat immediately in oil, salt ($NaNO_3$) or furnace for the time and at the temperature specified in Table III and cool.

Table III—Tempering Tool Steel

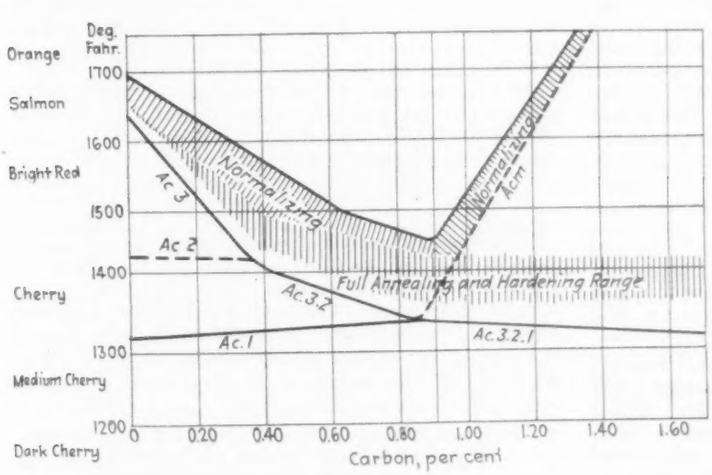
Results Desired	Tempering Medium	Temperature
Relieving Strains	Oil	350 to 375 Deg. Fahr.
Relieving Strains, and Reducing Brittleness	Oil	400 to 500 Deg. Fahr.
To Relieve Strains and to Toughen	Oil	500 to 600 Deg. Fahr.

Notes About the Process

General.—The recommended practice for the heat treatment of tool steel applies to the highest quality performance of tools for general purposes only. For specific applications where special structural requirements seem to be necessary, deviation from the recommended practice must be left to the judgment of the individual heat treater or metallurgist.

Normalizing.—A normalizing treatment for all tool steels is recommended to obtain a uniform and refined grain structure, which enables the operator to predict the behavior and performance of the tool steel during heating and quenching for hardening.

The variation in temperature for the different carbon ranges becomes evident upon a careful examination of the critical range diagram. A temperature very



Critical Range Diagram for Iron-Carbon Alloys, Showing Normalizing, Annealing and Hardening Ranges

much in excess of that required to produce solid solution (austenite) is conducive to austenitic grain growth and intergranular weakness.

A low normalizing temperature for high-carbon steels (1.25-1.50 per cent carbon) which fails to break up the massive cementite results in a brittle structure, since the rate of diffusion of the excess cementite depends upon the temperature. The solubility of carbide in iron being greater, or increasing as the temperature rises, the rate of this solubility is equivalent to the slope of the Acm. line in the diagram.

The higher normalizing temperatures given in Table I apply to the lower carbon ranges and the lower temperatures to the higher carbon ranges, for steel of the hypo-eutectoid composition; or, in other words, "the normalizing temperature for hypo-eutectoid steels varies indirectly as the carbon percentage rises or falls, and the normalizing temperature of hyper-eutectoid steels varies directly with the percentage of carbon."

Heating for Quenching.—The wide range of temperature in the 0.65 to 0.80 per cent carbon steel is needed, as a number of tools, such as shear blades, arbors, mandrels and others, are all around the low point, and because of mass and forms require somewhat higher temperatures for quenching.

The quenching temperatures given are at the lowest temperature range consistent with highest quality tools; deviations from it are not recommended, but may be practical for diverse reasons.

Quenching.—Water is the universal quenching medium, and by varying its temperature and manner of application for the abstraction of heat, almost any degree of variation of structural conditions of the tool steel can be obtained. There are, however, special cases where oil may be a more suitable quenching medium.

Carbon Steels Suitable for Various Uses

Carbon Content 0.65 *to* 0.85 *Per Cent.*—Shear blades, boiler snaps and cups, hammers, stamping and pressing dies, mining drills.

Carbon Content 0.81 *to* 0.95 *Per Cent.*—Hot and cold sets, chisels, dies, shear blades, mining drills, smiths' tools, set hammers, swages, flatteners.

Carbon Content 0.96 *to* 1.10 *Per Cent.*—Small cold chisels, hot sets, small shear blades, large pinchers, large taps, granite drills, trimming dies, turning tools, planer tools, drills, cutters, slotting and milling tools, mill picks, circular cutters, small shear blades, threading dies.

Carbon Content 1.11 *to* 1.25 *Per Cent.*—Small cutters, small taps, drills, slotting and planing tools, wood cutting tools, turning tools, razors, etc.

Suitable Tempering Heats for Various Tools

Temperatures—350 *to* 390 *Deg. Fahr.*—Lathe tools for brass and copper alloys. Milling cutters for brass and copper alloys. Scraper and cutting tools for soft metals and micarta. Drawing mandrels, drawing dies, bone-cutting tools, hammer-faces, steel engraving tools, wood-carving tools, cutting tools for iron and steel, hand tools, threading dies for brass.

Temperature—400 *to* 500 *Deg. Fahr.*—Hand taps and dies, hand reamers, drills, bits, cutting dies, penknives, milling cutters, chasers, inserted sawteeth, press dies for sheet steel, rock drills, taps and dies, wire-drawing dies, dental and surgical instruments, twist drills.

Temperature 500 *to* 600 *Deg. Fahr.*—Bending and forming dies, shear blades, chuck jaws, forging dies, drifts, gages, press dies, flat drills, reamers, chisels and tools for woodcutting, hammers and drop dies, axes, lathe tools for copper augers, cold chisels, coppersmith tools, grinders, screw drivers, molding and planing tools, hacksaws, needles, butcher knives, saws.

SWISS-AMERICAN PLANT

Brown, Boveri & Co., Ltd., Electrical Equipment Makers, Negotiating for New York Shipbuilding Corporation

Marvin A. Neeland, president New York Shipbuilding Corporation, and Lawrence R. Wilder, president American Brown, Boveri & Co., a branch of the Swiss electrical manufacturing firm of Brown, Boveri & Co., Ltd., have sailed for Europe to conclude negotiations for the purchase by Brown, Boveri & Co. of the plant of the New York Shipbuilding Corporation at Camden, N. J. If the deal is concluded the Camden shipbuilding property will be converted into an electric manufacturing works, making electric locomotives, turbines, generators, motors and other heavy electrical apparatus, competing with the General Electric Co. and the Westinghouse Electric & Mfg. Co.

Brown, Boveri & Co., Ltd., have had an American agency for the past three and a half years called the Scintilla Magneto Co., which has marketed in this country the magnetos manufactured in Switzerland by Brown, Boveri & Co. Following the organization of the American Brown, Boveri & Co. in December, 1924, the company established a factory at Sidney, N. Y., which is manufacturing airplane magnetos for the United States Government.

The intention of Brown, Boveri & Co. to break into the American market with their electrical equipment was heralded recently when they submitted a bid to the New York Central Railroad for the building of 10 electric locomotives.

Present officers of the American Brown, Boveri & Co. are Lawrence R. Wilder, president; Rudolph Funk and Edward N. Barlow, vice-presidents. Mr. Wilder has been in charge of the Scintilla Magneto Co.'s business since the American branch was established at 225 West Fifty-seventh Street, New York. He is an American and a graduate of Princeton University.

Rumors that Brown, Boveri & Co. might take over the plant of the New York Shipbuilding Corporation have been in circulation for months, or since a party of officials of the Swiss firm made an inspection trip in this country. After the war the business of the New York Shipbuilding Corporation suffered greatly because of the general depression in the shipbuilding industry and the plant has been diverted to the fabrication of steel for buildings, the company having been the successful bidder on many large contracts.

The stock of the New York Shipbuilding Corporation is owned jointly by the American International Corporation, International Mercantile Marine Co., W. R. Grace & Co. and the Pacific Mail Steamship Co. There are authorized and outstanding 200,000 shares of stock of no par value. The property was purchased in 1916 by its present owners for about $15,000,000.

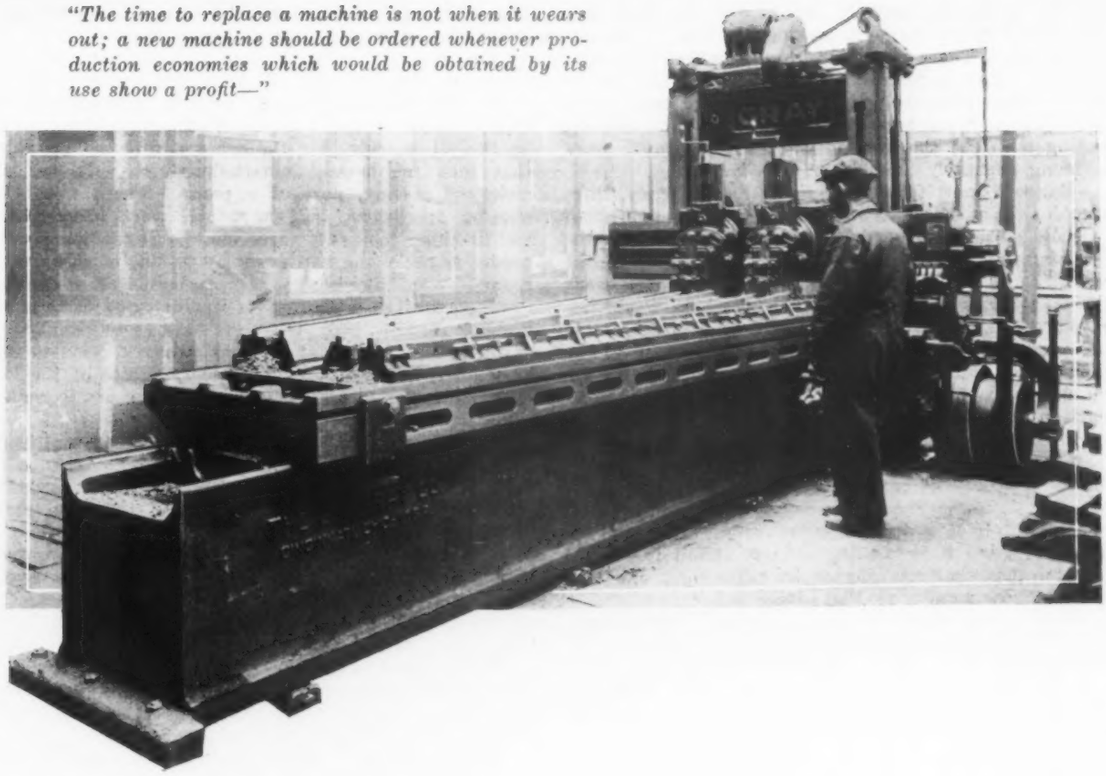
Financial details of the organization of the American Brown, Boveri & Co. have not been announced, but it is unofficially stated that the capital stock issue will be about $40,000,000 or $50,000,000.

The equipment of the New York Shipbuilding Corporation plant is said to be ideally suited to the work that Brown, Boveri & Co. will do, and very few machine tool additions will be required.

Wood waste from its body-building plant is to be used as fuel by the Willys-Overland Co., Toledo, in combination with coal, to supply power to its large new drop forging plant. The coal will be burned on six Taylor underfeed stokers under 640-hp. boilers. Chutes and a conveyor system will introduce the wood above the stoker fuel bed.

The abandonment of its heavy repair shops at Logansport, Ind., has been ordered by the Pennsylvania Railroad. Hereafter heavy repair work will be done at Fort Wayne and Cincinnati.

"The time to replace a machine is not when it wears out; a new machine should be ordered whenever production economies which would be obtained by its use show a profit—"



Who Decides Machine Purchases?

Machine Operators Should Not Be Expected to Know When It Would Pay a Profit to Install New and More Efficient Equipment

BY TELL BERNA*

YOU need no introduction to George; he is the planer-hand here in our plant; he has run the planer over there in the corner since its installation and is one of our best and most reliable men.

In your plant, as well as in ours, and in every similar plant is to be found a George in a like capacity. He never moves very fast, but he wastes no time. Economical of his strength, he makes every move count. He knows just where to put his hand on the next tool he needs and his machine is always in "apple-pie" order. His work is always what the German General Staff would have called "plangemaessig," "according to plan."

With that combination of a shrewd, resourceful operator, and a machine on which almost anything can be machined, George gets a queer assortment of problems; in fact, some of the knottiest problems that ever came into the shop have been solved on the table of his planer. While he gets a good deal of production work, the best thing he does is to tackle a new job and turn it out—quietly and accurately. By the time you want it, it is ready, waiting for the next operation. Nobody has to check it, for George is more exacting than the inspector would be.

In view of such a situation, the statement that the planer department is inefficient would be resented or perhaps considered a joke. But the department is probably inefficient in spite of George. The point is that, while George is efficient, there are things that even he does not know about planers, and his machine probably is obsolete. Notwithstanding the fact that it is in good running order, it may be so obsolete that economy demands its being broken up and thrown into the cupola, for the sake of replacing it with a modern machine.

Besides, George is isolated. With all his shrewdness and skill, his chances of observation are limited to whatever happens to come to his machine. He has no time to visit other plants, or to see some progressive piece of planer work over in the next State. Considering the facilities at his command, George's experience is very wide and the progress he has made is remarkable, but there are many other Georges thinking out planer problems, and someone, somewhere, probably has a kink that George could use to save half an hour every day. He is often too close to his problem, too hurried by the necessity of solving it, and of getting on to the next one; too often interrupted, to find the very best solution.

It seems clear that George should get out into some other plant occasionally. At least, the planer foreman or the shop superintendent should check up on the planer methods in use in other progressive shops. Such trips pay for themselves many times over, even if they only induce in shop executives the mental attitude, "Our way may not be the best way; can't we improve it?"

George is proud of his cutting tools and has ideas of his own about the proper angles of rake and clearance, but he is often wrong, and the accumulated experience of many planer hands and many shop men would set him right. The planer builder can give such data and furnish tool models, and George will welcome ideas along that line. There is a very definite connection between the cutting tool and the floor-to-floor time.

*G. A. Gray Co., Cincinnati.

The planer department must not be neglected, merely because George is making the best of his opportunities. There is a wide margin between knowing enough and knowing all. George would be the first to admit that. His machine may be running day in and day out, the work may be turned out in time for the boring mill, yet the assumption that the planer work is being efficiently handled may be wrong.

Entirely apart from George and his efficiency, there remains the planer. There is even less argument about it. An efficient planer-hand can save minutes while the planer is wasting hours. The trouble is that the waste is invisible. If George were to come to work fifteen minutes late every morning, the boss would immediately discern a loss, an avoidable loss, which would get prompt and effective attention. But as long as the planer does not break down and does not stand still, no one checks up to see what it is really doing in comparison with the newest planer standards.

How old is the planer?

"About ten years," says George. But when he recollects carefully he realizes with surprise that "eighteen years" is the correct answer. What can be done about it? It is still in running order and is worth something, but it is wasting money. Shall it be sold to some firm that can't figure its costs right and that doesn't know what a modern planer is?

It costs too much to run a planer eighteen years old; even a seven-year-old planer is an obsolete tool, not because seven years' wear (or even eighteen) is a serious matter, but because planers have advanced tremendously during that period. A careful analysis of costs will leave little room for doubt.

George has no idea what it costs to run his planer an hour, nor is he particularly interested in this phase of the situation. Since he is getting 80c. an hour, he thinks that it probably costs about $1, allowing, generously, 20c. for all of the overhead charges, of which he has rather a dim conception. As a matter of fact, it costs about $2.50, estimated as follows:

Interest on investment, 6 per cent on $5,000 divided by 2400 working hours	$0.125
Depreciation, 3 per cent	.063
Wages	.80
Rent, light, heat, insurance, etc. (overhead)	1.50
Total	$2.488

It can readily be seen that the discovery of a means of saving one-half hour a day will earn a net profit of $1.24. If that can be done by doubling the amount invested in the planer which George is to run, a net profit still shows because, while the two small items, interest and depreciation, are increased, there has been a saving on the total. Figures in other plants may be different, but analysis proves the results to be the same.

Many shops do not realize that although the planer-hand is doing his best, although the tool is running continuously and apparently is good for another 25 years of service, they are extravagant in continuing production with their present equipment.

George has thought up some very ingenious schemes for supporting his jobs. When a casting comes to him over and over, it isn't long until he accumulates the blocks, bolts, straps, etc., that will enable him to set up the job quickly; but the other day he set up a job that took ten hours, floor-to-floor time. It was an awkward casting, part of a pump. There were two planing operations, but the actual work of roughing and finishing took only three hours. Seven hours were needed to make the two set-ups. On one of these were required over fifty blocks, clamps, bolts and spreaders.

"You see," said George, "it wouldn't pay us to make a chuck for this, because we get only about twenty-five of them in a year." If he knew what it costs to run his planer, he might conclude that in spite of the low quantity, it would pay well to make a fixture to reduce this setting-up time.

Here is a flagrant example of an error that very often creeps into our planer departments. When does it pay to make a fixture for a job? This is a question that can be accurately figured out if the shop costs are known.

A large manufacturer of Diesel engines and presses planed a certain frame press in lots of five. The average floor-to-floor time per frame was thirty hours. To ascertain whether it would pay to replace an old planer with a new one, he sent one of the frames to a planer builder. The floor-to-floor time was 8.3 hr. and the job was more accurate than had been thought possible. This result was somewhat startling to the firm, which considers itself efficient in every department.

Suppose we consider a case in which a certain "George" was using every modern kink on a seven-year-old planer in a large plant manufacturing laundry machinery. The planer had been tooled up for the job, which was to rough out and finish a cast iron steam chest. The roughing cut required power, but even the old planer was heavy and rigid enough for the stiffest cut it had to take. However, the company more or less reluctantly installed a modern planer; and the first lot came through showing a net saving in the floor-to-floor time of just one-third.

The time to replace a machine is not when it wears out; the executive who waits until George tells him the planer is worn out is certain to lose money for the company. A new machine should be ordered whenever production economies which would be obtained by its use would show a net profit on the new investment.

The superintendent traded in his automobile the other day. It was only two years old but he realized that in a few months the tires, battery and other things would have to be replaced. The automobile is still running. It isn't worn out, but he was wise to trade it in.

He will adopt the same attitude toward George's planer one of these days.

Standard Drilling Machine Equipped for Production Work

An example of adapting a standard drilling machine to production purposes by the application of special fixtures and auxiliary heads is pictured in the accompanying illustration, this equipment having been designed and built by the Hoefer Mfg. Co., Freeport, Ill., for drilling and tapping the hole in the universal joint yokes shown on the rotating table of the machine. An 11/32-in. drill and a 1/8-in. pipe tap are employed, and the production per minute ranges from 4 to 7 yokes, depending upon the thickness of the metal drilled. The same equipment may be used for other work than here shown.

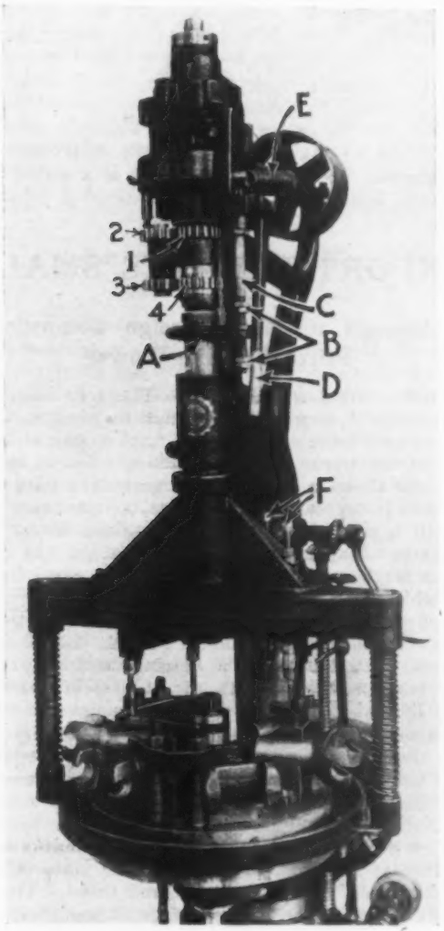
The machine is made up of the company's 23-in. drilling machine with standard 2 to 1 reverse gear tapper. As speed changes are unnecessary a wide face pulley is used in place of a cone pulley, and a special feed mechanism is employed to meet the requirements of this job.

To eliminate the necessity of manual operation, the tapper is designed so that the travel of the spindle trips the clutch lever through an adjustable nut, thus automatically reversing the driller for tapping. Upon the spindle reaching its uppermost position the clutch is brought to neutral, ready for the beginning of a new cycle. This construction may be noted in the illustration, *A* being the automatic tripping collar, which operates against adjustable nuts *B*, thereby throwing the clutch lever *D*, by means of trip rod *C* in combination with spring *E*.

Since it was considered necessary to provide a positive feed to prevent stripping of the fine threads in this tough material, and as a lead screw having 27 threads per inch, which is equal to the pitch of a 1/8-in. pipe tap, was inadequate to withstand the work pressure of the drills and taps, the following construction was employed. The driving gear shown at *1* in the illustration is connected through a sliding key to the drilling machine spindle and transmits power through gears *2* and *3* at a ratio of 3 to 1 to

sleeve gear 4. The latter consists of a hard bronze sleeve made integral with gear 4 and having an internal nine-pitch thread, engaging with a corresponding thread on the driller spindle.

The head is of the company's regular auxiliary head design. Through proper ratio of the gears for driving the drill spindles a speed and feed per revolution were secured for the drills which would work



Standard Drilling Machine with Special Fixtures and Auxiliary Head for Production Drilling and Tapping of Yokes and Other Parts

satisfactorily with the tap, the feed of which is a fixed factor. The drills are held in special collets which have vertical adjustment, vertical adjustment of the taps being taken care of on each tap spindle as shown at *F* in the illustration.

The indexing fixture is hand rotated, the plunger pin being operated by a foot lever thus leaving the operator's hands free. Three sets of holding fixtures of two units each are mounted on the rotating table as shown, six yokes being carried when all fixtures are filled. After loading the fixtures at station No. 1 the operator withdraws the plunger pin and swings the table 120 deg. to station No. 2 where these pieces are drilled through guide bushings. While the drilling takes place, two new pieces are being loaded in the second set of fixtures at station No. 1 ready for the next indexing, which takes place as soon as the drilling is done. Then the table is again indexed which brings the drilled yokes to station No. 3 for tapping; the second set of yokes to the drilling position at station No. 2, while loading again takes place in station No. 1. At each indexing two finished pieces are removed from the loading station.

The head and base of the indexing jig are connected by guide rods operating through bushed holes. Springs on the rods cushion and help counterbalance the head. Lubricant is forced to the tools from a pump mounted on a tank at the base of the machine.

Electrical Immersion Unit

In calibrating thermometers and in tempering tools in salts it is desirable to heat the pots evenly on the outside or to introduce heating elements on the inside. The electrical heating unit illustrated has been developed by Harold E. Trent, 259 North Lawrence Street, Philadelphia, to meet the conditions incident to the melting of salts such as Lavite, which material is a good heat insulator when cold. The heating element, of the embedded type, is packed in a steel tube in such a way that there is a maximum of heat capacity and the temperature of the unit may be safely raised to 1600 deg. before initial heating of the salt takes place.

These are made in sizes up to 1500 watts for 18 in. in length, 1.9 in. in diameter. This has been found a satisfactory unit in size. For melting other material the wattage can be run considerably higher, but as the salts under consideration are heat insulators, the thermal capacity of any unit under this condition is limited. The end connection can be supplied to meet the requirements of any particular application.

Classifications of Pumps

The Hydraulic Society, 90 West Street, New York, C. H. Rohrbach, secretary, has published the third edition of "Standards of the Hydraulic Society," which contains not only information embraced in the earlier editions, but also such new data as a standard classification of pumps; standard nomenclature and definitions pertaining to the industry; standard dimensions for cast iron flanges and cast iron flanged reducers for 125 lb. and 250 lb. steam pressures as adopted by the A. S. M. E.; also a very complete list of chemicals and other special liquids, specifying the materials recommended in the construction of pumps for handling these special liquids. Copies of the booklet may be obtained from any pump manufacturer who is a member of the Hydraulic Society or from Mr. Rohrbach.

Tonnage and Speed of Freight Trains Break Records

American railroads in May made three new high records in handling freight trains. The average freight train contained more cars, was heavier, including the freight in it, and was moved more miles per hour than ever before.

"The average gross tons per train—excluding locomotive and tender, but including cars—in that month," says the *Railway Age*, "was 1695. This exceeds any figure previously reached, and the new record was almost entirely due to the fact that the average number of cars per train was 44.6, which also exceeded the best previous record of 43.8, made in October, 1924. Although the average weight of trains was greater than ever before, they were moved an average of 12.2 miles an hour, which exceeded the previous high record of 12 miles made in April.

"The average number of tons of freight [net load] in each train in May was 755. The number of tons of freight hauled one mile by each train hourly in May was 9211."

European Markets in a Rut

Marking Time in Most Lines—Each Country Fears Competition from Each of the Others—Prices Slowly Sagging

(By Cablegram)

LONDON, ENGLAND, Aug. 10.

DESPITE the holidays there is a slightly better feeling in the Cleveland pig iron market. Although prices have registered a further decline, there is only a small amount of business passing. Hematite is easy on account of large stocks, but some export sales have been made. Last month's pig iron shipments from the Tees amounted to only 25,000 tons—the lowest this year.

Finished iron and steel are dull; avoidance of coal mine stoppage has resulted in no improvement in demand and makers are forced to compete keenly to secure business. The Tanganyika Concessions have placed about 100,000 tons of rails here, divided among the principal mills. The price was not disclosed. Many steel works are expanding the holiday period beyond the normal, owing to a lack of orders.

Sheets and Tin Plate

Tin plate is quiet, being held nominally at 18s. 9d. ($4.49) basis I. C. f.o.b., but less is accepted.

Galvanized sheets are quiet and firm.

Black sheets to Japanese specifications are in demand and premiums are asked for early shipment.

On the Continent of Europe

No fresh development has occurred in the Belgian strike, but negotiations are in progress between the masters and the men in the engineering industry.

The German hoop iron syndicate has been established.

Further output restrictions have been announced by the Westphalian Steel Works, the Hüttenbetrieb, A.G., Rombacher Hüttenwerke, Gelsenkirchener Bergwerks, A.G., Deutsch-Luxemburg Bergwerks & Hütten, A.G., and Krupps. There is a new threat of a strike in the Saar steel works.

EXPORT REBATES SMALL

Not Enough to Meet Foreign Competition—Prices Trending Lower

BERLIN, GERMANY, July 21.—The iron and steel export trade is comparatively small at present, though the producers have established a fund to pay an export bonus to the works exporting direct. Yet in spite of this bonus there is little inclination on the part of the producers to increase their exports, as the home prices are still higher than the price obtained abroad plus the bonus. Export quotations are about 114 marks per ton for bar iron and, deducting the cost of transport, which may be figured at about 4 marks per ton, and adding the bonus granted, which amounts to 12.50 marks, the producer would get about 122.50 marks compared with 130 marks if he could sell his products in the home market. As this is at present possible to only a limited extent, the works are obliged to export.

Consumers have succeeded also in forcing home prices down, especially in bar iron. In structural shapes and in semi-finished material the influence of the syndicates has been strong enough to prevent any reduction in prices. This has led to the condition that the price of structural shapes is several marks higher than that of bar iron. Prices of other material, also, have decreased, except for wire and tubes. The producers claim that the margin of profit has become exceedingly small, and to cut down general expenses they might be forced to dismiss some of their employees.

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £1, as follows:

Durham coke, del'd..	£1	1s.				$5.10	
Bilbao Rubio ore†	1	0½				4.98	
Cleveland No. 1 fdy..	3	14½				18.10	
Cleveland No. 3 fdy..	3	10½				17.13	
Cleveland No. 4 fdy..	3	10				17.01	
Cleveland No. 4 forge	3	9½				16.89	
Cleveland basic	3	11½				17.37	
East Coast mixed....	3	15½				18.34	
East Coast hematite.	4	19				24.06	
Ferromanganese	15	10				75.33	
*Ferromanganese	15	5				74.11	
Rails, 60 lb. and up..	8	5	to £9	6s.		40.09	to $43.74
Billets	6	10	to 7	5		31.59	to 35.23
Sheet and tin plate bars, Welsh	6	10	to 6	15		31.59	to 32.80
Tin plates, base box..	0	18¾	to 0	19		4.56	to 4.65
						C. per Lb.	
Ship plates	8	0	to 8	10		1.73	to 1.84
Boiler plates	12	10	to 13	0		2.71	to 2.82
Tees	8	2½	to 8	12½		1.76	to 1.87
Channels	7	7½	to 7	17½		1.60	to 1.71
Beams	7	2½	to 7	12½		1.54	to 1.65
Round bars, ¾ to 3 in	8	12½	to 9	2½		1.87	to 1.98
Galv. sheets, 24 gage	16	2½	to 16	5		3.49	to 3.52
Black sheets, 24 gage	11	10	to 11	15		2.49	to 2.55
Black sheets, Japanese specifications	15	5				3.30	
Steel hoops	10	15	and 12	10*		2.33	and 2.71*
Cold rolled steel strip, 20 gage	18	0				3.90	

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)							
Belgium	£3	1s.	to £3	2s.		$14.82	to $15.06
France	3	1	to 3	2		14.82	to 15.06
Luxemburg	3	1	to 3	2		14.82	to 15.06
Basic pig iron: (a)							
Belgium	3	0	to 3	1		14.58	to 14.82
France	3	0	to 3	1		14.58	to 14.82
Luxumburg	3	0	to 3	1		14.58	to 14.82
Billets:							
Belgium	4	14				22.84	
France	4	14				22.84	
Merchant bars:						C. per Lb.	
Belgium	5	8				1.17	
Luxemburg	5	8				1.17	
France	5	8				1.17	
Joists (beams):							
Belgium	5	4				1.13	
Luxemburg	5	4				1.13	
France	5	4				1.13	
Angles:							
Belgium	5	18½	to 6	0		1.28	to 1.30
⅛-in. plates:							
Belgium	6	10				1.41	
Germany	6	10				1.41	
⅜-in. ship plates:							
Luxemburg	6	9				1.40	
Belgium	6	9				1.40	

(a) Nominal.

Business in different iron products varies. In semi-finished material and in structural shapes demand has slightly weakened. Conditions in the trade for railroad material have improved only slightly on account of the orders of the German Railroad Co., which have recently been placed, as they are spread over a period of several months. In the export market the competition is exceedingly keen, especially from the French, the Belgian and the Luxemburg works, but no progress has been made in the formation of an international rail syndicate, much against the wish of the German producers, who would like to see such a syndicate established.

With the decrease in the number of orders on hand, the works stipulate a shorter time of delivery now and bar iron, hoop iron, sheets and wire again are delivered within two weeks. Present prices are on the average about as follows, in marks per metric ton, with American equivalent:

		Per Gross Ton
Blooms	120	($29.04)
Billets	112½	($27.22)
Sheet bars	125	($30.25)
Wire rods	135	($32.67)
		Per Lb.
Structural shapes	132	(1.42c.)
Universal iron	145	(1.57c.)
Bar iron	130	(1.40c.)
Hoop iron	157½	(1.70c.)
Sheets, heavy	138 to 140	(1.49c. to 1.51c.)
Sheets, medium	158	(1.65c.)
Plates, 1 to 3 mm.	176	(1.90c.)
Plates, below 1 mm.	188	(2.03c.)

GERMAN MARKET FALLING

Iron and Steel Markets Dull—Export Rebates Fixed to August 31

BERLIN, GERMANY, July 28.—The iron and steel branch has entirely lost the activity which characterized it early in the year, and extreme dullness, with falling prices, prevails. Other industries continue to improve. Total unemployed on July 1 numbered only 195,582, against 593,000 in February. The last labor union report shows also a decline in unemployment in the metal industries taken as a whole, but this is due to increasing activity in certain manufacturing branches, including the electrical and farm machinery.

Passage of the Luther Cabinet's tariff bill through the Reichstag, now practically assured, will tend to injure staple American export branches, the more so because the demand for motor cars in Germany continues to exceed the supply. This demand would increase still further were cheap, light American cars available. The German automobile industry, entrenched at present behind the import prohibition and to be entrenched in future behind the enormous duties, continues to dump abroad, though on a small scale.

The cheap-iron agreement between producers and consuming manufacturers has now been completed. It will greatly strengthen the hands of exporters of engineering, electrotechnical, shipbuilding and miscellaneous metal products. From March 1 (retrospectively) until the end of August the rebates have been fixed at 5 m. per metric ton ($1.21 per gross ton) on ingots and blooms, 6 m. ($1.45) on billets and slabs, 12 m. (0.13c. per lb.) on universal iron (through July; 13 m. for August) 15 m. (0.16c.) on bars, 12 m. ($2.90) on wire rods, 7½ m. (0.081c.) on band iron, 7 m. (0.076c.) on medium thick sheets, 10m. (0.11c.) on thin sheets, 25 m. (0.27c) on quality thin sheets, dynamo sheets and transformer sheets, 10 m. on tubes through June, 30 m. (0.324c.) in July and August. On thick sheets no rebate is granted. The effect will be to enable the manufacturers to export cheaply, while they will charge native consumers of finished goods considerably higher prices.

In general the market has been very dull. Many orders were withdrawn in the last fortnight, and delivery terms were shortened. Bars are now delivered in three weeks. There is practically no demand for semi-finished material, structural forms or universal iron at the present published prices, but a certain amount of selling at considerably lower rates is done. In sheets price cutting is general, thick sheets being an exception. Wire rods cannot be sold at all except by price cutting. The published prices are, per metric ton, with American equivalents:

Blooms	112½	$27.22
Billets	120	29.04
Slabs	125	30.25
Wire rods	130	31.46
		Per Lb.
Bars	126	1.36c.
Universal	145	1.57c.
Thick sheets	135	1.46c.
Medium sheets (3 to 5 mm. or No. 11½ to No. 6½ gage)	154	1.66c.
Thin sheets (1 to 3 mm.)	172	1.86c.
Thin sheets (under 1 mm. or No. 20 gage)	186	2.01c.

Home buying is checked by shortage of working capital and payment is very slow. The export market is nearly dead. The net price ex-works now received for exported bars is only 106 m., or with export bounty 118½ m. Medium sheets are exported at as low as 143 m.; thin sheets (1 to 3 mm.) at about 160 m. All these export prices, according to Essen trade journals, are far below production cost. As before, Franco-Belgian "exchange dumping" entirely dominates European prices.

The scrap iron market is dull, and prices have fallen. Price of steel scrap per metric ton is 64 m. ($15.49); solid scrap, 61 m. ($14.76); iron and steel turnings, 52 m. ($12.58); machine cast scrap, 74 m. ($17.91). Rhenish-Westphalian smelters have entirely ceased buying, having considerable supplies on hand and being too short of money to take advantage of the prevailing low prices. Krupps have closed down the Annen Steelworks, which were working at a loss.

Luxemburg Iron and Steel Industry Dull

LUXEMBURG, Aug. 1.—June was fruitful with important negotiations with a view to establishing international ententes. The agreement between ironmasters of Germany, France and Luxemburg seemed in a fair way, but negotiations have been postponed by difficulties arising in the discussion of the Franco-German *modus vivendi*. This factor of uncertainty has somewhat marred the pace of the iron and steel market, the trend of which was quite undecided at the beginning of July. Afterward the market was profoundly stirred by the disordered rates of exchange, the noticeable reserve of buyers, and by the political, economic, financial and social developments, particularly the strike that broke out in the metallurgical and building industries in the Charleroi Basin.

The metallurgical market has been extremely dull on the Continent; this lack of transactions has rendered prices uncertain, nominal and very unsteady, by the fact that they have fluctuated with the importance of business offered and with the state of bookings at works. A recrudescence of export business has somewhat mitigated the diminishing of shipments to Germany, this latter country remaining the prey of financial and economic difficulties. In this way Luxemburg works have been able to push on production and improve costs. The situation has not changed in July, during which rates remained undecided or unsteady and the flow of business extremely slow. Quotations in Belgian francs for metric ton, with American equivalents, during the last week of July were:

	Fr.	Per Gross Ton
Pig iron No. 3	330 to 340	or $15.42 to $15.88
Semi-finished products, ingots, basic	450	or 21.02
Blooms	470	or 21.95
Largets	520	or 24.30
	£ s.	Per Lb.
Bars (export price)	5 9	or 1.18c.
Beams (export price)	5 5	or 1.14c.

The Ukrainian Soviet Republic will purchase 3000 tractors during the current year for resale to the peasants, according to information received from Kharkov by the Russian Information Bureau in Washington. Of this number 1500 had been received by the middle of July. The tractors are being sold to the peasants on credit terms extending over a period of three harvests.

JULY STEEL OUTPUT

Decrease from June Only 4595 Tons or 3.7 Per Cent in Daily Rate

The steel ingot output of the country in July at 118,753 gross tons per day showed only a moderate decline from June—4595 tons per day or 3.7 per cent. This compares with a decrease in June from May of 7.2 per cent. Last month's production was also much larger than that of July, 1924, in fact nearly two-thirds higher than last year's low point.

The statistics of the American Iron and Steel Institute show that the July output of the companies which made 94.43 per cent of the country's total in 1924 was 2,915,611 tons. Assuming that the 5.57 per cent not reporting produced at the same rate, a total July production is indicated of 3,087,590 tons. The corresponding annual rate is about 36,900,000 tons, or about 68 per cent of capacity.

The table gives the production by months of the different kinds of steel, together with the estimated daily rate for all companies.

Monthly Production of Steel Ingots, Reported by Companies Which Made 94.43 Per Cent of the Steel Ingot Production in 1924

Months, 1925	Open-Hearth	Bessemer	All Other	Calculated Monthly Production All Companies	Approximate Daily Production All Companies, Gross Tons
Jan.	3,262,748	689,996	11,960	4,198,564	155,502
Feb.	2,931,964	602,042	13,014	3,756,243	156,510
March ...	3,336,169	614,860	13,633	4,198,520	161,482
April ...	2,857,802	515,715	14,182	3,587,524	137,982
May	2,754,130	497,708	13,790	3,458,253	133,010
June	2,538,988	476,945	12,490	3,207,056	123,348
July	2,444,969	457,095	13,547	3,087,590	118,753
7 Mos...	20,126,770	3,854,361	92,616	25,493,750	140,849
1924					
Jan.	2,766,534	667,032	12,577	3,649,913	135,182
Feb.	2,902,641	695,905	14,085	3,826,246	153,050
March ...	3,249,783	706,801	15,260	4,206,699	161,796
April	2,575,788	573,381	12,356	3,348,466	128,787
May	2,060,896	425,099	6,648	2,640,034	97,779
June	1,637,660	310,070	2,622	2,065,676	82,627
July	1,525,912	241,880	5,162	1,877,789	72,223
7 Mos...	16,719,214	3,620,168	68,710	21,614,823	118,763
Aug.	2,042,820	361,781	5,764	2,552,891	98,188
Sept.	2,252,976	409,922	6,864	2,827,625	108,755
Oct.	2,505,403	438,468	7,058	3,125,418	115,756
Nov.	2,479,147	459,349	8,403	3,121,149	124,846
Dec.	2,811,771	546,506	11,707	3,569,251	137,279
Total ...	28,811,331	5,836,194	108,506	36,811,157	117,984

Luxemburg Production in June

LUXEMBURG, Aug. 1.—Iron and steel production in Luxemburg during June, in metric tons, was as follows:

Pig Iron	Tons	Steel	Tons
Basic iron	185,738	Basic steel	167,536
Cast iron	2,290	Open-hearth	2,900
Various irons	2,045	Electric	589
Total	190,073	Total	171,025

Blast furnaces active on June 30 included: A. R. B. E. D.: All 6 at Esch o/Alz; all 6 at Dudelange; 2 of the 3 at Dommeldange. Terres Rouges: All 6 at Belval; 1 of the 5 at Esch. Hadir: All 10 at Differdange; Rumelange is out of blast. Rodange: 4 of the 5. Steinfort: 2 of the 3.

Another New Plant for Sand-Spun Cast Iron Pipe

A new plant for the manufacture of centrifugal cast iron pipe by the "sand-spun" process is to be built by R. D. Wood & Co., 400 Chestnut St., Philadelphia, at Florence, N. J. This process was described in detail in THE IRON AGE, June 5, 1924. The new plant will have a capacity, when running full, of about 400 tons per day.

The completion of this plant, together with that of the one now being erected by the American Cast Iron Pipe Co., Birmingham, and announced in THE IRON AGE last week, will afford a capacity of about 900 tons per day of this kind of pipe.

LABOR IN SMALL DEMAND

Pennsylvania Cities Report Light Operations and Poor Labor Market

HARRISBURG, PA., Aug. 10.—Slight improvement in iron and steel trade conditions in several employment districts of the State are indicated in the semi-monthly report to R. H. Lansburgh, Secretary of Labor and Industry. Conditions in most cases, however, are not promising.

Philadelphia is experiencing a steady call for builders of wooden and steel cars, while first-class tool and die makers and millwrights are rare. Electric welders are wanted, but a decrease is reported in the demand for acetylene welders.

A noticeable improvement in all foundry work, particularly steel and brass, is reported by Reading. Conditions otherwise have not improved. Experienced machinists and electric welders have been sought by the Reading Steel Casting plant, which has attempted to put a night force to work, but has been handicapped by lack of experienced machinists. The Ninth Street and Oley Street rolling mills are adding more furnaces. They are expected to be working at capacity soon.

In Pittsburgh a surplus of boilermakers, riggers, chippers and workmen in regular machine lines is reported.

Scranton expects one of its machine shops to furlough 250 men soon. In Williamsport a local motor plant has taken off its night shift, effective Aug. 1, for an indefinite period, about 150 men being involved. There is little employment to be offered them in the lines in which they have been engaged.

Erie has a surplus of all varieties of iron and steel workers. Allentown is experiencing no difficulty in filling requisitions for workmen. Automobile mechanics are being sought in Lancaster, but otherwise no additional workers are wanted. Johnstown has had only a few calls for workers.

Oil City has had a few orders for riveters, chippers, calkers, fitters-up and coremakers. A few experienced men can be used in boiler manufacturing.

Germans and Irish Numerous Among Immigrants

WASHINGTON, Aug. 11.—Immigration in May of the current year totaled 26,045, while emigration for that month was 8403, leaving 17,642 in favor of the incoming movement during that month. Of the immigrants, 15,349 came from Europe and 10,398 from the Western Hemisphere. The largest number of immigrants came from Germany, the total from that country being 4816, while the Irish Free State ranked second with 3005.

Immigration from England was 1335 and from Scotland 1223. Of the 26,045 immigrants, 14,403 were males and 11,642 were females. The total immigrants between the ages of 16 and 44 years was 19,148. The total of skilled workers was 4878, of which 141 were rated as iron and steel, and 40 as metal workers. The number of laborers was 3298.

Higher Export Tax on Brazilian Manganese Ore

The State of Minas Geraes, Brazil, has passed a law for the taxation of exports of manganese ore, according to a report received by the Mineral Division, Department of Commerce, from Assistant Trade Commissioner A. Ogden Pierrot, Rio de Janeiro. The former tax was levied according to weight. By the present system a higher tax will be imposed on the high-grade ore, while the tax on low-grade ore has been reduced. Analyses will be made in a laboratory in Rio de Janeiro and all exporters will be required to pay a monthly charge for its service.

ALCOHOL FROM COKE OVENS

French Are Recovering It Commercially from the Gases by a Noted Process *

A short time ago it was noised that Germany was manufacturing synthetic alcohol on a large scale and that, in the near future, it would be in a position to land almost unlimited quantities of this commodity in America at a lower price than that at which the distilleries could afford to sell it. This allegation was soon afterwards denied; but considerable interest has been aroused in the subject. On the other hand, the petroleum situation is admittedly serious, especially in view of the tremendous increase in the demand for gasoline. The French, who are in a most disadvantageous position in this respect, have been studying the problem very seriously, and have found a partial solution in the substitution of alcohol for gasoline in explosion engines. The alcohol will be obtained as a by-product (along with many other valuable by-products) from coke oven gases, which at present are being burned. The following is a brief description of the process which is being installed at the plant of the Compagnie des Mines de Béthune, in France.

The process is based on the following reactions: Combination of ethylene with sulphuric acid to form sulfovinic acid (ethylsulphuric acid) ($H_2SO_4 + C_2H_4 = C_2H_5HSO_4$), and saponification of the latter with liberation of alcohol and regeneration of the sulphuric acid ($C_2H_5HSO_4 + H_2O = C_2H_5OH + H_2SO_4$).

In order to carry out the first reaction the gas must remain in contact with the acid for a rather long period, and the acid must be strongly agitated in order to mix the two constituents intimately. While this drawback is present even when working with practically pure ethylene, it becomes almost prohibitive when working with gases which, like those from coke ovens, contain only about 2 to 3 per cent of ethylene.

As to the second reaction, theoretically the whole of the sulphuric acid used is recovered, but it is so dilute that it is no longer suitable for absorption of ethylene. This acid could, it is true, be concentrated; but not only is this an expensive operation, but the tarry impurities absorbed by the acid along with the ethylene makes it almost impossible.

Finally, the saponification of the sulfovinic acid is a reversible reaction. Displacement of the equilibrium toward the right is favored by removal of the alcohol by distillation and also by addition of larger quantities of water, which results in a higher fuel consumption for distillation.

The Compagnie des Mines de Béthune has succeeded, after much investigation, in overcoming these various difficulties, and has perfected a process comprising the following steps:

1.—Extraction of the ethylene from the coke oven gases, so as to make it react with the acid at a relatively high concentration;

2.—Absorption of the ethylene in sulphric acid under conditions such that absorption takes place rapidly and acid consumption is reduced to a minimum;

3.—Decomposition of the sulfovinic acid under special conditions which result in rapid saponification and which give a residual acid which is sufficiently concentrated to be suitable for other purposes;

4.—Utilization of the residual acid.

The Béthune company has installed a plant for the synthesis of ammonia by the Claude process, the required hydrogen being obtained from the coke oven gases by liquefaction of all the other constituents. By cooling the gases progressively, the various constituents, such as benzol, ethylene, methane, carbon monoxide and many other hydrocarbons which are present in smaller proportions, are separated from one another in a reasonable state of purity. The ethylene is thus obtained at a concentration of 20 to 30 per cent.

Pure, concentrated sulphuric acid absorbs ethylene but slowly; but a mixture of sulphuric and sulfovinic acids absorbs it much more readily. In other words, the ethylene is absorbed in sulphuric acid which already contains a considerable proportion of the gas, up to 18 per cent or more. The operation is continuous, fresh acid and ethylene being fed into a suitable tank, and the sulfovinic acid drawn off, the contents of the tank being stirred and kept at about 40 to 50 deg. C. to hasten the absorption.

The sulfovinic acid is fed directly to a distilling column, without previous dilution, and as it travels downward it meets a rising current of steam and of ammonia gas, both of which help to raise the temperature and saponify the sulfovinic acid. The upper portion of the distilling column acts as a dephlegmator, the water which condenses there also contributing to saponify the sulfovinic acid. The heat generated by the hydration of the sulphuric acid and that generated by its neutralization by the ammonia are used very efficiently for the distillation of the alcohol. The crude alcohol is obtained at a concentration of 30 to 60 per cent by volume according to the height of the distilling column.

The Béthune company is in an exceptionally fortunate position, in that it manufactures synthetic ammonia with which it can neutralize the whole of the sulphuric acid used, thus transforming it into sulphate of ammonia, which is sold for fertilizer. Coking plants, which do not manufacture synthetic ammonia, would recover enough ammonia to neutralize about one-quarter of the sulphuric acid used, leaving a net consumption of about 2.25 kilos of acid per kilogram of alcohol produced. As this is practically the only expense involved in the process, the latter could still be used successfully to compete with distillery alcohol.

*Abridged translation by A. Papineau-Couture of an article in *Chemie et Industrie*, May, 1925.

Russian Purchases Here Growing

WASHINGTON, Aug. 10.—Russian purchases of machinery in the United States during the first six months of 1925 were 42 per cent greater than during the entire year 1924, according to figures compiled by the Russian Information Bureau. Purchases of metals during the six months' period were threefold the purchases during the entire year 1924, and of automobiles, trucks and parts were two and a half times the 1924 figures.

The value of the machinery purchases during the half year ending June 30 was $5,407,682, as compared with $3,805,569 during all of 1924. Purchases were divided as follows:

	Half Year, 1925	Full Year, 1924
Agricultural machinery	$3,415,080	$1,768,417
Oil well machinery	689,970	678,871
Machines and parts (general)	1,302,632	1,358,281
	$5,407,682	$3,805,569

Soviet purchases of metals here for the six months' period were $805,516, as compared with $288,779 during the entire year 1924, and purchases of automobiles, trucks and parts were $629,561, as compared with $250,944 in 1924. None of the above figures includes unfilled orders for future delivery.

Virtually all of the purchases were made through the Amtorg Trading Corporation of New York. In discussing the figures, Isaiah J. Hoorgin, chairman of the board of Amtorg, said:

"Hitherto the purchases of machinery made here were largely of replacement machinery and parts. This year they are mostly of basic machinery. This fact is an evidence of the rapid expansion of industry in the Soviet Union, with the building of new factories in the textile, metallurgical, electrical and other lines. The excellent harvest in the Soviet Union this year foreshadows a further expansion of the machine buying business here for Russian account."

The total Soviet trade turnover in the United States for the six months was $58,779,736, which is about equal to the turnover for the entire year 1924, and is nearly two and a half times the value of the trade for the half-year 1913. Russian purchases were $52,610,645 and sales were $6,169,091. These figures do not include American imports of Russian manganese.

Exports of agricultural implements from the United States during the 12 months ending June, 1925, were valued at $62,977,914, as compared with exports amounting to $60,905,380 in the 12 months ending June, 1924, according to the Agricultural Implements Division of the Department of Commerce. The outstanding increase in the fiscal year was in shipments of wheel tractors.

Steel Treaters' Fall Meeting Program

Comprehensive Selection of Technical Papers Prepared for Cleveland Convention

THE tentative schedule of technical papers for the seventh annual convention of the American Society for Steel Treating to be held in Cleveland, Sept. 14 to 18, is as follows:

MONDAY, SEPT. 14.

10:00 a. m.
Welcome of Cleveland Chapter by H. A. Schwartz, chairman.
Address of Welcome by Colonel Dillard, general chairman.
Response by Pres. W. S. Bidle.

10:15 a. m.—*Technical Session: Chairman: Harry A. Schwartz.*
"A Study of Dendritic Structure and Crystal Formation," by Bradley Stoughton and F. J. D. Duck, Lehigh University, Bethlehem, Pa.
"Effect of Reheating on Cold Drawn Bars," by S. C. Spalding, Halcomb Steel Co., Syracuse, N. Y.
"Experiments with Nickel, Tantalum, Cobalt and Molybdenum in High-Speed Steels," by H. J. French, Bureau of Standards, Washington.

2:00 p. m.—*Technical Session: Chairman: Bradley Stoughton.*
"Effect of Cold-Work on Endurance and Other Properties of Metals," by D. J. McAdam, Jr., U. S. Naval Engineering Experiment Station, Annapolis, Md.
"Graphitization at Constant Temperature," by H. A. Schwartz, National Malleable & Steel Castings Co., Cleveland.
"Some Factors Affecting Coercive Force and Residual Induction of Some Magnet Steel," by J. R. Adams and F. E. Goeckler, Midvale Co., Nicetown, Philadelphia.

TUESDAY, SEPT. 15.

9:30 a. m.—*Steel Melting Session.*
"Proportion of Heat Treated Steel to Total Production," by C. J. Stark, *Iron Trade Review*, Cleveland.
"Acid Open-Hearth Steel," by Radclyffe Furness, Midvale Co., Nicetown, Philadelphia.
"Basic Open-Hearth Steel," by Edward Whitworth, Bourne-Fuller Co., Cleveland.
"Electric Furnace Steel," by F. T. Sisco, McCook Field, Dayton, Ohio.

12:30 p. m.
Metallurgical Education Symposium Luncheon at Hotel Cleveland. Chairman: Dr. A. E. White.

2:00 p. m.—*Technical Session: Chairman: Dr. Zay Jeffries.*
"Comparative Slow-Bend and Impact Notched Bar Tests on Some Metals," by S. N. Petrenko, Bureau of Standards, Washington.
"Chemical Composition of Tool Steels," by J. P. Gill, Vanadium Alloys Steel Co., Latrobe, Pa.
"Application of the Mathematics of Probability to Experimental Data as a Basis for Appropriate Choice of Ferrous Materials," by B. D. Saklatwalla and H. T. Chandler, Vanadium Corporation of America, Bridgeville, Pa.

6:00 p. m.
Dinner Meeting of Committee E-4, A. S. T. M., Old Colony Club, Hollenden Hotel.

9:30 p. m.—*Annual Smoker and Entertainment.*

WEDNESDAY, SEPT. 16.

9:30 a. m.—*Annual Meeting of the American Society for Steel Treating. Chairman: W. S. Bidle.*
Report of Chapter Delegates.
Report of Officers.

Technical Session: Chairman: Dr. G. K. Burgess.
"Retained Austenite—A Contribution to the Metallurgy of Magnetism," by Dr. John A. Mathews, Crucible Steel Co. of America, New York.
"On Martensite," by Dr. H. Hanemann, Technische Hochschule, Charlottenburg, Germany. (To be presented by Dr. S. L. Hoyt).

2:00 p. m.—*Technical Session: Chairman: Prof. E. D. Campbell.*
"The Carbon Content of Pearlite in Iron Carbon Alloys Containing One Per Cent Silicon," by Anson Hayes, Iowa State College, Ames, Iowa.
"Dilatometric Method of Heat Treatment," by O. E. Harder, R. L. Dowdell and Mr. Forsythe, University of Minnesota, Minneapolis.
"Interpretation of Notched Bar Impact Test Results," by Paul Heymans, Massachusetts Institute of Technology, Cambridge.
"Oil Burning Equipment for Industrial Furnaces," by W. H. Mawhinney, General Furnace Co., Pittsburgh.

9:30 p. m.—*Annual Dance, Ball Room, Hotel Cleveland.*

THURSDAY, SEPT. 17.

9:30 a. m.—*Technical Session: Chairman: Dr. Albert Sauveur.*
"Initial Temperature and Mass Effects in Quenching," by H. J. French and O. Z. Klopsch, Bureau of Standards, Washington.
"On the Nature of Some Low-Tungsten Tool Steels," by M. A. Grossmann, United Alloy Steel Corporation, Canton, Ohio, and E. C. Bain, Union Carbide & Carbon Research Laboratories, Long Island City, N. Y.
Paper by F. C. Langenberg, Watertown Arsenal, Watertown, Mass. (Title to be supplied later).

2:00 p. m.—*A Session Contributed by the American Society of Mechanical Engineers, Machine Shop Practice Division. Ball Room, Hollenden Hotel.*
"Modern Surface Grinding," by Henry K. Spencer, Blanchard Machine Co., Cambridge.
"Dies," by Mr. Keller, Keller Mechanical Engineering Corporation, Brooklyn.
Titles of other papers to be supplied later.

2:00 p. m.—*Symposium—Hardness Testing Committee of the A. S. S. T., Hollenden Hotel.*
"Electric Ring for Verification of Brinell Hardness Testing Machines," by S. N. Petrenko, Bureau of Standards, Washington, D. C.
"Some Comparisons Between Rockwell and Brinell Hardness," by R. C. Brumfield, Cooper Union, New York City.
"Hardness and Toughness of High Speed Steel as Affected by the Heat Treatment," by R. K. Barry, Barry Co., Muscatine, Iowa.
"Stress-Strain Curve and the Characteristics Which Are Associated With Hardness," by H. P. Hollnagel, General Electric Co., West Lynn, Mass.
"Hardness of Cold Rolled Nickel," by Dr. S. R. Williams, Amherst College, Amherst, Mass.
"English Hardness Testing Machine of the Brinell Principle," by O. W. Boston, University of Michigan, Ann Arbor, Mich.

6:30 p. m.—*Annual Banquet of the A. S. S. T., Ball Room, Hotel Cleveland.*

FRIDAY, SEPT. 18.

9:30 a. m.—*Technical Session.*
"Carburization by Solid Cements," by W. E. Day, Jr., International Motor Co., New Brunswick, N. J.
"Irregular Carburization, Its Causes and Preventions," by W. J. Merten, Westinghouse Electric & Mfg. Co., East Pittsburgh.
"What Happens When Metal Fails by Fatigue," by Prof. H. F. Moore, University of Illinois, Urbana, Ill.

2:00 p. m.—*Technical Session.*
"Why Cast Iron and Steel Cracks and Warps," by John F. Keller, Purdue University, Lafayette, Ind.
"Welding Steel Tubing and Sheet with Chrome Molybdenum Welding Wire," by F. T. Sisco and H. W. Boulton, McCook Field, Dayton, Ohio.

The morning sessions will be held in the ballroom of the Hotel Cleveland and those in the afternoon in the ballroom of the Hollenden Hotel. Inspection of various plants has been arranged for each afternoon except Monday, Sept. 14, and Thursday, Sept. 17. Among the plants listed are the Midland Steel Products Co., National Carbon Co., White Motor Car Co., Van Dorn & Dutton Co., F. H. Glidden Co. and the American Steel & Wire Co. The steel exposition which is to be held in the public auditorium will be opened each day from 1 p. m. to 10 p. m., excepting Thursday, Sept. 17.

Program for the Fall Meeting of British Institute of Metals

The technical program for the annual fall meeting, Sept. 1 to 4, of the Institute of Metals (British) to be held in Glasgow, Scotland, is as follows:

"The Effect of Low-Temperature Heating on the Release of Internal Stress in Brass Tubes," by R. J. Anderson, Boston, U. S. A., and E. G. Fahlman, Cleveland, U. S. A.

"Colloidal Separations in Alloys," by Prof. J. H. Andrew and Robert Hay.

"The Influence of the Time Factor on Tensile Tests Conducted at Elevated Temperatures," by John S. Brown.

"Passification and Scale Resistance in Relation to the Corrosion of Aluminum Alloys," by L. H. Callendar.

"Zinc-Cadmium Alloys. A Note on their Shear Strengths as Solders," by R. B. Deeley.

"Thermal Conductivities of Industrial Non-Ferrous Alloys," by J. W. Donaldson.

"The Influence of Pouring Temperature and Mold Temperature on the Properties of a Lead-Base Anti-Friction Alloy," by Prof. O. W. Ellis, Toronto, Canada.

"On the Constitution of Zinc-Copper Alloys Containing 45 to 65 per cent. of Copper," by Marie L. V. Gayler.

"The Effect of Temperature on the Behavior of Metals and Alloys in the Notched-Bar Impact Test," by R. H. Greaves and J. A. Jones.

"On the Constitution of Alloys of Aluminum, Copper and Zinc," by D. Hanson and Marie L. V. Gayler.

"The β Transformations in Copper-Zinc Alloys," by J. L. Haughton and W. T. Griffiths.

"The Properties of some Aluminum Alloys," by Harry Hyman.

"The High Temperature-Tensile Curve. (*a*) Effect of Rate of Heating. (*b*) Tensile Curves of Some Brasses," by Douglas H. Ingall.

"The Physical Properties of the Copper-Cadmium Alloys Rich in Cadmium," by C. H. M. Jenkins.

"The Primitive Copper Industry of America," by George B. Phillips, Philadelphia, U. S. A.

"The Alpha-Phase Boundary in the Copper-Tin System," by D. Stockdale.

Preliminary details of this meeting were published in THE IRON AGE, June 11.

Annual Meeting of Ohio State Foundrymen

The Ohio State Foundrymen's Association will hold its annual convention at Cedar Point, Ohio, Sept. 3 and 4. The following papers will be presented and discussed:

"Legislative Problems," by Malcolm Jennings, secretary Ohio Manufacturers Association, Columbus; "Your Insurance Problem," by W. G. Wilson, Ohio Aetna Affiliated Companies, Cleveland; "Employee Training," by L. A. Hartley, director of education National Founders Association, Chicago, and a "Round-table Discussion on Subjects of Importance to Foundry Operation."

The regular convention dinner will be held Thursday evening, Sept. 3, for which a high-type of entertainment will be provided. At the luncheon on Friday, Sept. 4, the round-table discussions will take place. Among the subjects arranged for this are insurance, foundry sands, foundry costs, the electric furnace and apprenticeship training.

Fall Meeting of Iron and Steel Institute

The autumn meeting of the Iron and Steel Institute will be held at the University, Edmund Street, Birmingham, England, Sept. 9 to 11. The following is a list of the papers scheduled for the meeting:

"The Dilatation of Cast Irons during Repeated Heating and Cooling," by J. H. Andrew and R. Higgins.

"Equilibrium at High Temperatures in the Iron-Carbon-Silicon System," by M. L. Becker.

"High-Frequency Induction Furnaces," by D. F. Campbell.

"The Chromium-Iron Equilibrium in Carbides Recovered from Annealed 2.23 Per Cent Chrome Steels," by E. D. Campbell and J. F. Ross.

"Steel Molding Sands and their Behavior under High Temperatures," by A. L. Curtis.

"The Tensile Properties of Single Iron Crystals and the Influence of Crystal Size upon the Tensile Properties of Iron," by C. A. Edwards and L. B. Pfeil.

"The Orientation of Crystals Produced by Heating Strained Iron," by C. F. Elam.

"Ancient Iron from Richborough and Folkestone," by J. Newton Friend and W. E. Thorneycroft.

"The Effect of Temperature on the Behavior of Iron and Steel in the Notched Bar Impact Test," by R. H. Greaves and J. A. Jones.

"Notes on the Iron-Nickel and Iron-Cobalt Equilibrium Diagrams," by L. Grenet.

"Reduction of Iron Ores by Hydrogen," by H. Kamura.

"Blast Furnace Practice in India, with special Reference to Economy in Coke Consumption," by J. L. Keenan.

"The Davis Steel Wheel and its Manufacture in England," by W. R. Martin.

"Retained Austenite," by J. A. Mathews.

"A New Direct Process," by H. Flodin.

"The Magnetic and Electrical Properties of Cast Iron," by J. H. Partridge.

"Dendritic Segregation in Iron-Carbon Alloys," by A. Sauveur and V. N. Krivobok.

"The Influence of Strain and of Heat on the Hardness of Iron and Steel," by A. Sauveur and D. C. Lee.

Welding Convention Program Arranged

The fall meeting of the American Welding Society, to be held at the Massachusetts Institute of Technology, Cambridge, Mass., Oct. 21, 22 and 23, will, it is expected, be the largest in the history of the society. An exposition of welding equipment and supplies and demonstrations of the possibilities of welding will be a feature.

Five technical sessions have been arranged. "Thermit Welding," a paper by J. H. Deppler, chief engineer, Metal and Thermit Corporation, New York, will be presented Wednesday morning, Oct. 21. In the afternoon there will be a paper on "Gas Welding of Power Plant Piping," the author of which will be announced later.

"Industrial Applications of Arc Welding and Economies Effected Through Its Use," a paper prepared jointly by H. M. Hobart, consulting engineer, General Electric Co., and chairman of the society's electric arc welding committee, and W. Spraragen, secretary of the American Bureau of Welding, will be a feature of a session to be held Thursday morning, Oct. 22. A meeting of the American Bureau of Welding, the research department of the society, will be held on Thursday afternoon. The program will include a review of present activities and consideration of future plans.

A series of short addresses on the "Selection of Materials for Welding" is planned for the Friday morning session, these being followed in the afternoon by a paper on "Spot Welding of Automobile Bodies," by J. W. Meadowcroft, general supervisor of welding of the E. J. Budd Mfg. Co., Philadelphia.

Group Meetings of A. S. T. M.

The group meetings of the various metal and other committees of the American Society for Testing Materials, which were inaugurated in 1923 and which have been unusually successful, will be continued. It is probable that the fall meeting of the metal and non-metals committees will be held either in Cleveland or Chicago in October.

COMING MEETINGS

September

American Society of Mechanical Engineers, New Haven Section. Sept. 8 to 11. Fifth annual machine tool exhibition, Mason Laboratory, Yale University, New Haven, Conn. Ernest Hartford, 29 West Thirty-ninth Street, New York, vice-chairman.

American Society for Steel Treating. Sept. 14 to 18. Seventh annual convention, Municipal Auditorium, Cleveland. W. H. Eisenman, 4600 Prospect Avenue, Cleveland, secretary.

National Safety Council. Sept. 28 to Oct. 2. Annual meeting, Cleveland. W. H. Cameron, 168 North Michigan Avenue, Chicago, managing director.

Rising Tide of Imports Due to Recede

Financial Readjustments Abroad and Increased Consumption in Colonial Possessions Likely to Reduce Competition from Europe—Exports Still Drop

THE iron and steel industry played a prominent part in the shift of our trade balance in June, when imports exceeded exports by $2,000,000. The level of iron and steel shipments from abroad has been rising since last November and indications are developing that the high water mark may soon be, if it has not already been reached.

During the first half of the current year imports showed a 70 per cent gain over the corresponding period a year ago. Two-thirds of the 487,000 tons brought in during the January-June period consisted of pig iron, ferroalloys and scrap, however, and during June, when imports jumped one-fifth above the May figure, practically all of the gain was accounted for by these items. Recent increases were also recorded in structural shapes, rails and tubular products, but the incoming ferromanganese, manganese metal and alloy was less than one-half of the May imports.

That the inward movement has been increasing in pace recently is evident from the totals for the year ended June, 1925. Imports for the twelve months amounted to about 750,000 tons, which represented about one-third more than for the June 1923-24 total.

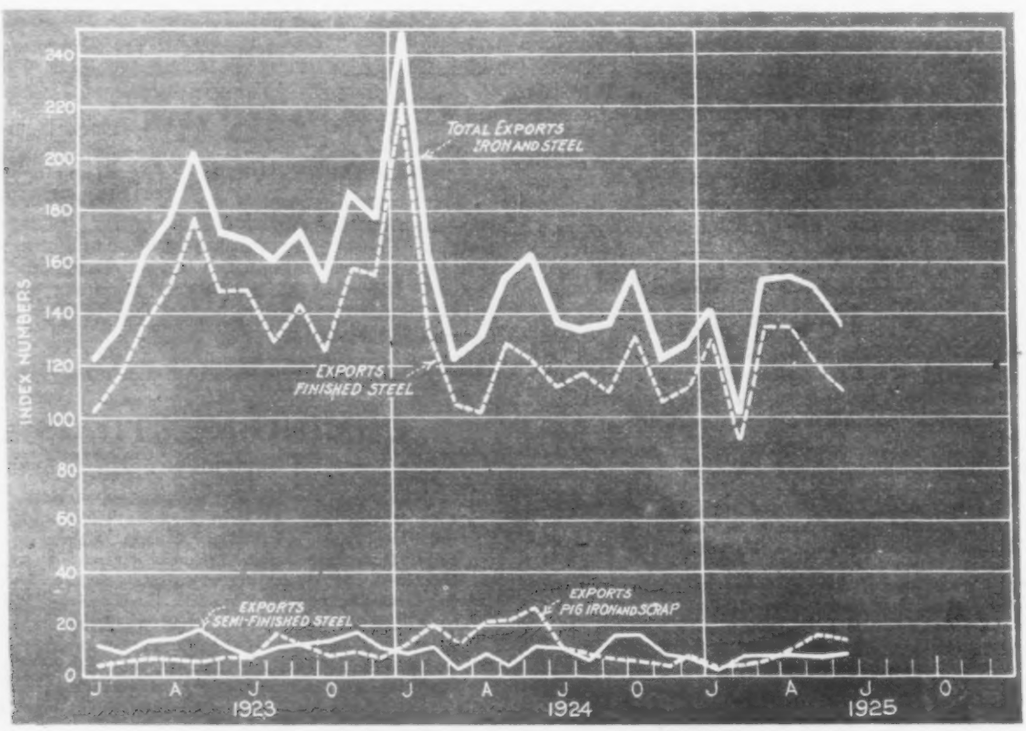
Manufacturers of iron and steel are asking when the flood of imports will recede. The outlook for the fall and winter is far from discouraging. Imports are now coming in some volume from Belgium, India, Germany, the United Kingdom and France. These countries have passed through the reconstruction or readjustment periods, as the case may be, and find themselves with expanded manufacturing facilities at a moment when world buying is at a minimum. Russia is virtually out of the market, if present purchases can be compared with prewar. Financial stress in France, the unemployment crisis in England, the Stinnes collapse—all these are but symptoms indicating that consumption of goods is at low ebb in Europe.

An Opportunist Campaign

MOREOVER, the Continental markets are not bolstered up by orders from colonies or colonized territories, as was the case prior to 1914. Consequently, order-hungry Europe turns its opportunist eyes to America for business.

But currency stabilization has been achieved, readjustment of individual companies abroad has been well completed and as conditions become more normal, world consumption will increase. Europe will once more sell to spheres of special influence and plants which now turn to the United States as a temporary market will be occupied with other business.

As living conditions abroad improve, wages and consequently material prices will increase. Broadly speaking, it may be said that the long-time trend of prices in Europe is upward whereas that in the



Exports of Finished Steel Show a Downward Movement

In This Issue

New York's unofficial metal exchange facilities more efficient, less expensive than London's.—And quoted prices here more representative of market since speculation is eliminated.—Page 426.

July steel output nearly two-thirds higher than same month last year.—Companies operating at 68 per cent of capacity: daily rate off 3.7 per cent from June.—Page 418.

Last month's building volume makes new record for month of July.—Total for first seven months one-fifth above same period in 1924: July 2 per cent below June.—Page 410.

Is effective steel making capacity above 51,000,000 tons?—American Iron and Steel Institute asked to revise 58,400,000 figure: THE IRON AGE placed figure at 54,000,000 tons last year.—Page 427.

Has the high water mark in imports been reached?—Financial readjustments abroad and increased colonial consumption may lower European competition.—Page 422.

Lake Superior iron ore shipments in July 17 per cent over year ago.—Movement to Aug. 1 is 21 per cent larger than for first seven months of 1925.—Page 425.

Unfilled Corporation orders drop only 170,000 tons.—Smallest decline since downward movement began; more on books than last year by 350,000 tons.—Page 431.

Does it pay to specialize on few lines in soliciting foundry orders?—Or is any business that can be obtained worth while? One foundry says 85 to 90 per cent of capacity is limit to insure good service.—Page 401.

New coal handling equipment doubles capacity of Virginia port.—Gravity operation, new type car dumpers and unique pier structure add 5000 tons an hour to capacity.—Page 405.

Many office buildings have sizable machine shops.—Handling repairs incident to operation of elevators, etc.—Page 410.

It pays to make fixtures for machine tool jobs more often than is appreciated, on account of time lost in setting up.—And often a "good" machine will be so obsolete that it is more expensive than a new one.—Page 413.

American Society for Steel Treating adopts new recommended practices for heat treatment of tool steel.—Includes normalizing before hardening and heat treating of plain carbon steel.—Page 411.

Russian purchases of machinery in first half year 42 per cent over total for whole year 1924.—Agricultural machinery accounts for most of gain.—Page 419.

French recover alcohol from coke oven gases.—Believed process in coking plants can successfully compete with distillery methods.—Page 419.

A broad conception of business should take into account three things.—Actual state of trade, trend of trade at the moment and situation as compared with advance appraisals.—Page 428.

Lack of essential physical data holds back complete understanding of steel reactions.—But researches are being made into temperatures, heats of reaction, specific heats, equilibrium constants, etc.—Page 408.

Anthracite production does not indicate provision for threatened strike.—Less than last year from January-July. Bituminous 9,000,000 tons higher than first seven months in 1924.—Page 425.

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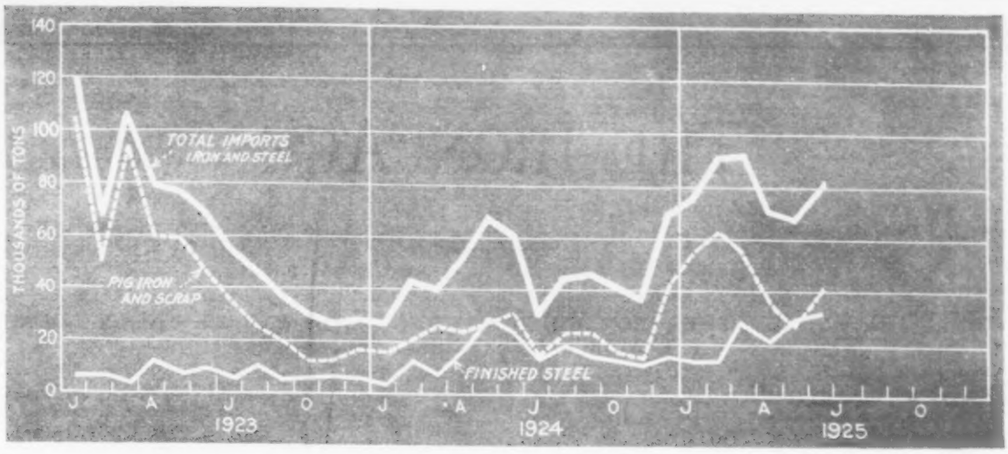
The Iron Age and Its Readers

FIFTY-FOUR foundries, big, little and "in-between," have been analyzed to make the first article in this issue. But this is only one part of the story. The study was so complete that it has touched upon many sides of a many-sided industry and thrown light on them all. It furnished a cross-section from which could be deduced not only what is best to do but also what to avoid.

Credit for the conception of the idea, and for unusually searching analysis, must be given the Policyholders' Service Bureau of the Metropolitan Life Insurance Co., which detailed two practical men for the field work, and then put their findings into most usable form.



Total Iron and Steel Imports Still on a High Level

United States is downward. Any movement which tends to bring a closer parity in world prices will act as a damper to shut off imports here.

These same factors lead to the belief that the fall may hold encouragement for exporters. During the twelve months ended June, 1924, we exported some 2,000,000 tons of iron and steel; during the twelve months ended in June of this year, we sold only 1,650,000 tons abroad. June exports also show a drop as compared with June of the previous year; 136,000 tons as against 163,000 tons in June, 1924.

But a summer decline in export trade is to be expected and, while the current downswing is a little greater than usual, there are the foregoing reasons for expecting a sizeable increase in fall sales to foreign countries. There are buyers in Europe who would purchase goods here today if financing could be arranged, and some of the necessary arrangements may possibly be made during the next few months.

Lake Ore Movement Heavy in July

Shipments of Lake Superior iron ore from the upper Lake ports in July were 8,525,063 gross tons or 1,245,049 tons larger than those for July, 1924. The increase was 17.1 per cent. The total season's shipments to Aug. 1 was 26,918,248 tons, which compares with 22,107,142 tons to Aug. 1, 1924. This is an increase of 4,811,106 tons or 21.76 per cent. The shipments by ports and for the season in 1924 and 1925 are as follows:

	July, 1924	July, 1925	To Aug. 1 1924	To Aug. 1 1925
Escanaba	535,332	801,804	1,742,062	2,601,340
Marquette	452,481	581,665	1,109,644	1,532,481
Ashland	838,221	1,004,540	2,677,188	3,124,513
Superior	2,567,467	2,353,254	7,372,109	7,355,722
Duluth	2,125,241	2,871,169	6,613,535	9,292,203
Two Harbors	761,272	912,631	2,592,604	3,031,989
Totals	7,280,014	8,525,063	22,107,042	26,918,248
Increase 1925		1,245,049		4,811,106

Of the total season shipments Duluth contributed 34.52 per cent as compared with 29.92 per cent last year. Great Northern's proportion was nearly 5 per cent less than a year ago.

To Promote Sales Abroad of Road Building Machinery

WASHINGTON, Aug. 11.—Organized for the purpose of collecting information on highway construction and development abroad and to make a survey of market possibilities for the sale of road-building machinery throughout the world, a highway section in the Transportation Division of the Bureau of Foreign and Domestic Commerce has been established.

Installation of modern fireproof steel cases in the library division of the United States Patent Office has been completed. They replace old fashioned wooden file cases that formerly housed the valuable records of the division.

Production of Secondary Metals in 1924

Bureau of Mines figures show the 1924 recovery of metal from secondary sources at $198,888,600, which is $6,530,000 less than in 1923. The decline is due to the smaller quantity of brass scrap remelted and to the lower average price of copper. It is believed that the accumulation of brass during the war period has now been absorbed, the peak of production of remelted brass scrap having been reached in 1923.

Tonnage figures for the principal items for 1924, with comparative figures for 1923, appear in the following table, all being represented in net tons:

	1924	1923
Copper, including that in alloys other than brass	196,500	193,200
Brass scrap remelted	274,000	311,000
Lead as metal	90,400	96,430
Lead as alloys	114,100	98,060
Zinc as metal	58,886	65,210
Zinc in alloys other than in brass and in chemical compounds	10,500	8,630
Tin as metal	7,700	7,892
Tin in alloys and chemical compounds	23,600	22,318
Antimony as metal	90	245
Antimony in alloys	9,314	7,776
Aluminum as metal	10,350	6,800
Aluminum in alloys	16,650	14,500
Nickel as metal	114	177
Nickel in non-ferrous alloys and salts	2,126	1,373
Totals	814,330	833,611

Coal Production to Aug. 1

Bureau of Mines' figures show bituminous coal mined in the week ended Aug. 1 to have amounted to 9,482,000 net tons. This brings the total for the calendar year to 275,562,000 tons, compared with 266,579,000 tons last year, and 329,385,000 tons for 1923. Anthracite coal produced in the week ended Aug. 1 aggregated 2,087,000 tons, making a total of 53,924,000 tons in the year to that date. This figure compares with 53,709,000 tons to the corresponding date of 1924. It does not indicate much provision for meeting the threatened strike.

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Why Not a Metal Exchange?

ZINC ore is sold in the Joplin district as an independent commodity, and the price is established by direct bids and offers. Yet in the minds of producers there the idea abides that the price actually realized for spelter is often somewhat different from what is quoted in the press and therefore that the offers should be higher than generally they are. Recently this inspired some interesting correspondence, which in turn led a London trade journal to remark that the American metal markets are backward in their methods, being inferior to the organization of the London Metal Exchange, and also led an American expert to renew the suggestion that there ought to be a metal exchange in New York, meaning of course one in fact and not merely in name.

The fact is that, instead of being backward in not having an exchange for dealings in copper, lead and zinc, as in London, New York has attained a superior development which has discarded such an organization as being useless. New York has a great metal exchange, which comprises the offices of the principal buyers and sellers, all of which are connected by telephone. The transactions are consummated with the expedition and openness, if not the publicity, of bartering around a post and without the intervention of brokers. Both buyers and sellers find it difficult to steal a march upon one another, so swift and so certain is the exchange of information. The services of brokers and a host of functionaries who would otherwise get their living out of the trade is saved, to the advantage of both buyer and seller, as ought to be self evident.

Thus New York has progressed beyond London for three reasons, one being that New York is the more progressive anyhow, another that it is in closer connection with the sources of supply of these metals, while the third is the different attitude and scale of the American buyer as compared with the British. The American producer wants to sell directly to the consumer, and when he has sold a block, lot, or parcel he wants it to stay sold. He is averse to selling to speculators and to facing the contingency that he may some day come into competition with his own product offered from second hands. However, speculative operations can be arranged in some quarters, wherefore New York even offers opportunity for outside speculation. We have therefore all the facilities, minus unnecessary trappings and inveiglements for small fry.

If we did have a metal exchange of the conventional type in New York, affording a living to many brokers and inviting outside speculative participation, it would be a producers' exchange after all, for being in control of the supplies they would be in control of the whole situation.

The reporting of this biggest metal exchange in the world is done by reputable, conscientious and intelligent trade journals. There is no greater fallacy than the belief that there exists a real price for these commodities that is different from what is quoted. There is indeed generally a difference between a quotational average and a realization average. If a certain quantity of a commodity be sold at a certain price on one day, which is quoted for that day, and 10 times the quantity at a lower price on the next following day, which is quoted for that day, the quotational average would be the arithmetic mean for the two days, while the quantitative average would be lower; oppositely it would be higher if the large sales had been made at an advance in price. So there might be a difference in the averages for a month or a year, and generally there is; and experience has shown that realization averages, which of course may be different for every seller, tend to underrun the quotational averages by a trifle.

If to a superior power were given the authority to command the records of all sellers every day, and if therefrom it were attempted to compute a weighted average by purely arithmetic methods, which has been suggested by inexperienced persons, the result would be a sorry mess. Differences in conditions such as quality of commodity, credit of buyer or seller, delivery, terms of payment, freights, etc., would be incapable of reconciliation except by a recorder, thoroughly informed, saturated with the market and reporting it day by day.

There are always certain transactions that are non-quotational. For example: Electrolytic copper of a certain standard is a common and competitive commodity; but a buyer who insists on a certain brand to the exclusion of all others may create a transaction of different nature from the broad market and not necessarily representative of the latter. Likewise in respect to spelter.

Sense of proportion and market intelligence may lead even to the dismissal of sporadic transactions actually made. For example: Transactions in copper to the aggregate of millions of pounds may be made at 14¼ cents on Monday. On Tuesday some seller may have realized 14⅜ cents for 100,000 pounds, the only transaction of the day, from a careless or poorly informed buyer, while at the same time round lots were being offered at 14¼ cents. On Wednesday large business may be done at the latter price. The true quotation for Tuesday is then 14¼ cents, not 14⅜ cents from a casual transaction although it were actually made. Anything else would be absurd. Similarly as to the opposite condition. It is a function of the market reporter to exercise such judgment, his very functioning being founded on integrity, knowledge, experience and judgment.

It is an ancient myth that offerings are made at reduced prices on certain days to influence quotations and help in the cheap buying of ore, whereupon the buyer promptly resumes selling his metal at higher prices after he has got the ore. This implies that the market reporter is lacking in integrity, knowledge, experience and judgment—deficiences which in fact would lead quickly to the loss of his job. What the buyer may do is to sell his metal long or short, and in comparison with his ore purchases realize a profit if he be right or a loss if he be wrong. If more often he obtains a profit than a loss, that is a result of his discernment. If the ore producers desire to put themselves on the same ground they should take the same pains to study economic conditions. In general they do not; and if they have any grievance it is a consequence of their own dereliction, not of any hocus-pocus in market quotations. Nor would an organized metal exchange or anything else help them in any way.

Standardizing Heat Treatment

IN a field in which standardization is comparatively new, the American Society for Steel Treating is doing most valuable work. From time to time its committee on recommended practice takes up for intensive study some special problem and then makes public its decision as to the methods that will insure the best heat treatment obtainable on a certain steel product. A good example of such results is the recommended practice for plain carbon tool steel as found on other pages. Both users and makers assisted in formulating the practice. Superseding an earlier one made in 1923 the report represents the latest thought on the product of an important industry.

The American Society for Steel Treating is eminently fitted for the work it has undertaken on the lines indicated. Made up of theoretical and practical men in every branch of steel treating, it can bring to the study of its various recommended practices through sub-committees the best experience of both the user and the manufacturer. It is to be doubted if any other society can approach this one in its fundamental equipment for such investigation.

The steel treaters already have made public recommended practices covering a number of key products. Their reception gives assurance that with those that are to follow they will be rated as notable contributions to metallurgical progress.

What Steel Making Capacity?

CHAIRMAN TOPPING, of the Republic Iron & Steel Co., in a contribution to THE IRON AGE of Aug. 6 advocated a revision of the figures the American Iron and Steel Institute carries in its annual reports as the estimated steel making capacity of the United States.

The last report of the institute put the steel ingot capacity of the country on Dec. 31, 1924, at 58,438,420 gross tons, of which 46,053,240 tons is assigned to open-hearth, 11,407,050 tons to Bessemer, 157,630 tons to crucible and 820,500 tons to electric steel. Mr. Topping cites the supreme war effort of 1917, when the total ingot output was 43,619,620 tons, also the great response of the industry to the remarkable demands of the building trades and the railroads in 1923, when the record of 1917 was so closely approached with an output of 43,485,665 tons. He allows 6,000,000 tons for capacity added since 1918 and expresses the opinion that the country's theoretic capacity for steel production at the present time is not above 51,000,000 tons.

The American Iron and Steel Institute figures are the total of the estimates of their steel making capacity sent to it each year by the producing companies themselves. The difference between this total, as at the close of 1924, namely 58,438,000 tons, and Mr. Topping's estimate is 7,438,000 tons. THE IRON AGE'S estimate of *effective* capacity in 1924, based in part on reports of new construction made to it each year by the steel companies, was 54,000,000 tons—three millions more than Mr. Topping's figure and nearly four and a half millions less than the institute's total.

Already Mr. Topping's suggestion that a resurvey be made of the steel capacity of the country, to bring the published estimate more in line with actual performance, has been approved by a number of other steel manufacturers. It is to be expected that the American Iron and Steel Institute, through a committee or otherwise, will bring the matter to the attention of all producers with a view to standardizing the rating of existing plants and more rigidly separating between really effective and nominally effective converters and open-hearth furnaces.

Mr. Topping points to the inoperative Bessemer plants of the country as likely to show considerable shrinkage under such a resurvey as he proposes. The suggestion opens up a question that has very considerable ramifications in the domain of accountancy, appraisals and balance sheets. There are no doubt cases in which statements of producing capacity, open-hearth as well as Bessemer, as they

have appeared in exhibits accompanying bond or stock issues, could not be easily revised.

It would appear that the Steel Corporation has kept its capacity figure closer to its actual performance than have most of the independent companies. In 1916 the corporation's own rating of its ingot capacity was 20,570,000 tons. Its actual output in that year (its record production) was 20,910,589 tons, or 101.6 per cent of its rated capacity.

In 1917, the year of highest steel production, the Steel Corporation's own estimate of its capacity was 22,200,000 tons. Today the corporation reports its capacity as 23,100,000 tons, an increase of 900,000 tons in eight years. At the end of 1917 the country's ingot capacity, as reported by the American Iron and Steel Institute, was 50,454,000 tons. Today the institute's figure for the country is 58,438,000 tons—an increase of 8,000,000 tons. It is quite certain that the country's additions to steel making plants in the past eight years have not been nine times those of the Steel Corporation.

The highest rate at which the country has produced steel for a single month was that of March, 1924, when 161,796 tons a day was reached. Counting 311 days to the year, this would be at an annual rate of more than 50,300,000 tons, or nearly 99 per cent of Mr. Topping's 51,000,000 tons.

The market aspect of the revised statistical basis now advocated is one that will occur readily to many minds. If the official rating of the country's capacity is too high, the month to month estimates of mill operations will not rightly represent the state of the industry. When the steel companies are reported to be operating at 65 per cent the attitude of the buyer of steel is naturally more complacent than when the percentage figures out 75 or 80.

It should be said, however, that the percentages commonly cited in steel market reports are based on estimates of the steel companies themselves. Recently it has been a matter of comment that the monthly figures of ingot production have indicated at times a larger output (in percentage of THE IRON AGE'S 54,000,000 tons a year) than the average of the steel company estimates, week by week, during the month. Trade discussion on this point has suggested that now and then manufacturers are over modest in respect to their own mill performance, lest a competitor be tempted to cut the price to get an equal share in the going business.

There are many angles to the proposal Mr. Topping has made to the steel trade. It will be found, indeed, as it comes under discussion, that it involves considerations of far more than statistical significance.

State or Trend in Trade?

BUSINESS men often inquire "What is the state of trade?" when what they really wish to know is "What is the trend of trade?" Statistical comparisons frequently ignore the distinction. Usually the business man takes the state of his own business and wishes to know how to plan his actions to fit the changes that are likely to occur. Therefore he is more interested in the trend than in the state of trade.

The much consulted statistics of freight car loadings illustrate the distinction. The record year was 1923 and comparisons are usually made with that year, skipping 1924. Taking the first 26 weeks, this year exceeded 1923 by 293,126 cars loaded, representing a gain of 1.2 per cent, yet it would be incorrect to say that this year is running better than 1923. The first 13 weeks furnished a gain of 4 per cent, but in the next 13 weeks there was a loss of more than 1 per cent. The period since the first 26 weeks elapsed has shown a loss of close to 2 per cent. Thus while the comparison of this year up to date with 1923 is favorable, the trend lately has been unfavorable. It is an interesting point that steel production showed somewhat the same swing, but not exactly. The first quarter had a gain over 1923, but the second quarter a greater loss, so that the half year brought a net loss.

A still finer distinction than that between the state and the trend of trade is often made, this being a distinction between the trend existing at the moment and the trend that had been expected. Consciously or unconsciously there is the assumption that the previous expectations were correctly based on known facts, and that if the trend varies from the expectation some new influences have come to work.

Accordingly, if business grows worse, but not so much worse as expected, the judgment is in a sense favorable. The inference is that the turn is going to be rounded so much the sooner; hence at long range the outlook is favorable. On the other hand, if a decided improvement in trade is expected and only a small one occurs, the judgment is in a sense unfavorable.

This sort of thing has been exemplified in steel trade comment in the past three months. Up to July 1 the statistics were unfavorable, with decreasing mill operations and softening prices, but so much less ground was lost than was being lost at the same period last year that the general comment was more or less favorable. In the past two or three weeks, on the other hand, there was disappointment that the steel business had not improved so much as was expected.

The broad conception should take into account three things—the actual state of trade, the trend at the moment, and the situation as compared with expectations or the advance appraisals. For a practical illustration of the point, if one has expected steel production to increase this month and finds it does not increase so much as expected, he should refrain from feeling disappointed until he has given due weight to the basing point of his expectation, which was the July production. That production was unusually high, hence it is correspondingly difficult for an increase to occur. Daily rates of ingot production in July of each year since the war have been as follows:

1919	113,500 tons	1923	141,258 tons
1920	127,994 tons	1924	72,223 tons
1921	36,709 tons	1925	118,753 tons
1922	118,112 tons		

The July average in six years was 101,633 tons daily. Last month's rate, 118,753 tons, in the seventh year, was 17 per cent above the six-year average.

X-RAYS IN INDUSTRY

Profitable Use on Coal—Some British Experience on Steel

Two short papers on X-rays were presented by C. Norman Kemp of Edinburgh, Scotland, before the International Radiological Congress in London, July 2. One discussed "The Applications of X-Rays in the Technology of Coal" and the other "X-Rays in Industry with Special Reference to Technical Radiology."

X-Rays and Coal

In the first paper, dealing with X-rays in their relation to coal technology, Mr. Kemp said that although at first sight this did not look promising, results of considerable interest are already being obtained. Perhaps the most important early work was carried out in Paris in 1898 by Couriot, and that work had paved the way for future investigations. Practically all the resources of modern radiology can be employed in investigating the structure of coal, it having been shown in this way that coal contains two distinct types of ash, one which is associated with the actual coal substances proper, and cannot by any process be removed from it, namely, the portion which under the stereoscope gives a more or less uniform field; and the other, the free ash, which shows up as blackish banding, and can be removed from the coal by suitable treatment. This is of more interest perhaps than appears at first sight, because it facilitates removal of the ash and non-burnable material from the really useful portion of the coal substance that is mined. Thus there is an important field for the examination of coal by means of X-rays before it is put on the market.

X-Rays as a Science

In his second communication Mr. Kemp emphasized the importance of introducing technical radiology as a distinct science and for providing facilities for teaching it. In Great Britain, he said, there are over 20 research associations of various kinds, some of which already employ X-rays in connection with research problems. In addition, there is the research department of the Woolwich Arsenal and the research department at the National Physical Laboratory, but, generally speaking, from the point of view of the utilization of X-rays by industrial firms, this country seems to be behind others, notably France and the United States. Of course, several firms with their own research departments do use X-rays—for instance, the General Electric Co., the British Thompson-Houston Co., the Metropolitan Vickers Co., the North British Rubber Co., and others; but very few industrial firms have, either on their management or their staffs, any members to whom an opportunity has been afforded of obtaining even a sufficient knowledge of this subject to enable them to imagine that it could be usefully applied to some of their own particular products.

Therefore, if training in X-ray technology becomes a normal course for electrical engineers—it could be quite a short course in the general principles of X-ray methods as applied to industrial problems—they would at least be provided with knowledge which they could turn to account if and when the occasion arose. The use of X-rays can be divided into three groups—(1) the medical section, (2) workers in pure physics, and (3) industrial use, and it would be for the benefit of the whole science if all these three groups engaged in mutual discussion on points of interest. Perhaps that could not better be done than by cooperation within the Roentgen Society.

Discussion

Dr. V. E. Pullin, director of radiological research, Woolwich Arsenal, said there must be numerous undiscovered ways in which X-rays can be employed in industry. At the same time, as the result of very large experience, X-ray equipment at the present time is not in a state to enable definite decisions upon the industrial problems to be obtained.

X-Rays and Steel

As an instance of the value of X-rays for helping to solve practical problems, Dr. Pullin mentioned the serious railroad accident in the North of England last year, when the tire of a wheel gave way and X-ray examination of it at once showed the nature of the fault which had led to this unfortunate accident. That involved penetration of 4 in. of steel, which appeared to be the maximum possible at the moment. X-rays are also being used for examining ingots for cartridge cases and other similar purposes, and there is an equipment at the air establishment at Farnborough for the examination of the materials used in aeroplane construction, while similar equipments are gradually being installed in the Royal Dockyards. Thus, from the government point of view, X-rays are being made full use of.

X-Ray Spectroscope

One of the most important pieces of apparatus in X-ray work industrially is the X-ray spectroscope, which has been used so much to study various materials. Dr. Pullin said he had been working with it on charcoal and explosives, and it was also of great value in connection with metals. Indeed, he felt very strongly that it was to the development of the X-ray spectroscope that industry must look for its more immediate benefits.

Dr. H. Moore, London, said that although there were certain definite ways in which X-rays could be used for industrial purposes, there were difficulties in making it a matter of routine work. A practical difficulty also was that unless a flaw in steel, for instance, happened to be at right angles to the direction of the beam, the flaw might not be observed as a flaw on the X-ray plate.

Dr. E. A. Owen, National Physical Laboratory, said that although they were doing a great deal of work of an industrial nature with X-rays at the N. P. L., he had never been able to obtain what he considered positive results. Several castings had been examined and flaws detected; but it was not at present possible to say that if a flaw was not discovered by X-ray examination, it did not exist. That, however, would no doubt come with further study of the subject.

Mr. Kemp, replying to the discussion, said it was undesirable that X-ray examination work should be discredited by being asked to do what it could not do at present. For instance, he had been asked by a firm whether the bearing of a rolling mill, which had been cracked and was a yard long by 22 in. in diameter, could be X-rayed to ascertain the depth of the crack. Obviously the answer was that it could not be done.

New Plant for Fine Wires

The Thompson Wire Co., Boston, has completed its new plant at 115 Stafford Street, Worcester, Mass., and expects to be manufacturing before Sept. 1. The company's works at Mattapan, on the outskirts of Boston, specializes on cold drawn flat wires. The Worcester plant will confine its output to cold drawn fine tempered round wires. A large factory building which was purchased and a smaller structure have been remodeled and a new one-story building, 60 by 105 ft., has been added. Giles S. Pease, for 16 years plant engineer of the Spencer Wire Co. and connected with the Goddard works after the absorption by the Wickwire-Spencer Steel Corporation, is the Worcester manager, and the superintendent is Alfred P. Lundquist, for 21 years head of the music and tempered wire department of the same companies. George M. Thompson, formerly general manager of the Worcester division of the Wickwire-Spencer company, is president and treasurer of the Thompson Wire Co., which he established a few years ago. A. L. Cowperthwaite, who for many years was associated with him in the wire business, is manager of the Mattapan plant.

CAPACITY OVERRATED

Steel Manufacturers Favor a Revision of Present Ratings

Two expressions have come to THE IRON AGE on the article of Chairman John A. Topping of the Republic Iron & Steel Co., which appeared in our issue of Aug. 6, advocating a downward revision of the steel plant capacity ratings published by the American Iron and Steel Institute. The following is from James A. Campbell, president Youngstown Sheet & Tube Co.:

"I thoroughly agree with Mr. Topping's views on steel capacity as outlined in THE IRON AGE of last week. I think the same thing is true with reference to pig iron capacity, as the average merchant furnace cannot operate at a profit under normal conditions."

Willis L. King, vice-president Jones & Laughlin Steel Corporation, Pittsburgh, makes this comment:

"I think Mr. Topping's article is very timely. The practical ingot capacity of this country is, according to my best information, approximately 50,000,000 gross tons per year. The total output during the first quarter of 1925, when the steel mills of the country ran practically 100 per cent, was 12,153,327 tons. The figures usually quoted, 58,000,000 gross tons, include many inactive and obsolete plants.

"I believe the American Iron and Steel Institute could do no better service to the steel industry than to prepare and publish a carefully revised estimate of the steel ingot capacity of this country. With this information, the trade would have a much closer basis for figuring the operations of the industry. I concur in Mr. Topping's belief that the country will very soon overtake the productive capacity of the steel plants now capable of operating."

MORE CHINESE INQUIRY

Political Feeling Brings Inquiry Here—Agricultural Machines Shipped to Russia

NEW YORK, Aug. 11.—While the Japanese market continues quiet, probably partly as a result of the firmer price position of American sellers for export, the volume of inquiries from Chinese merchants has reached considerably larger proportions than usual, attributed by exporters to the present disturbed condition of public feeling in China. As a result of the opposition to the British and some feeling toward the French, Chinese merchants, who are still friendly in attitude to the United States, are inquiring here for materials that normally would be purchased in the United Kingdom or Continental markets. The wide difference in prices, however, is expected to prove an obstacle to any actual business transactions.

Inquiries have included small lots of structural material, bars, hoops, pipe and the usual requests for prices on wire shorts, tin plate waste and old material. Among Japanese inquiries is one from a brewery for 10,000 boxes of prime coke tin plate.

A standard unit of the Jenkins cracking process has been purchased by the Ogura Oil Co. for its refinery near Yokohama, Japan. The order was placed by the Asano Bussan Co. with the Graver Corporation, East Chicago, Ind., and will be erected by the latter company.

Recent shipments of agricultural machinery to the Union of Socialist Soviet Republics by the Amtorg Trading Corporation, New York, total $2,200,000. One such shipment made Aug. 7 included 1494 tractors and 1500 plows, another cargo to be shipped Aug. 12 includes 2300 tractors and plows. These cargoes bring the total shipments of tractors to Soviet Russia by the Amtorg corporation since last August to 9000.

Two recent purchases of Caucasian manganese ore from the Iron & Ore Corporation of America, totaled 110,000 tons. The orders, one of 60,000 tons, the other of 50,000 tons, were placed by two of the large consumers in Pennsylvania. A purchase of 7000 tons of low phosphorus North African ore was made by an eastern Pennsylvania furnace.

Book Review

Coal Carbonization. By Horace C. Porter, M. S., Ph. D. (American Chemical Society Monograph Series). Pages 442, 6 x 9 in., illustrations 175, tables 56. Published by the Chemical Catalog Co., Inc., New York, 1924. Price, $6.

Coal carbonization has as advantages, hence has for its objects, not merely the conversion of a crude, unhandy and uneconomical fuel into something better and the production of an infinite number and variety of valuable by-products, but the relief of such cities as London, Chicago and Pittsburgh (in the latter of which the soot fall runs from 600 to 2000 tons per year per square mile) from the defiling, disfiguring and unhealthful effects of soft coal consumption.

Naturally, considering the capital invested in coking plants and the immense variety of direct and intermediate secondary and tertiary products therefrom, coke and coking form the major theme of this timely and valuable contribution to industrial literature. There is a wealth of well chosen material, textual and illustrative, and the eager seeker for future information is told where he can find such of a reliable character.

The coal carbonized in this country being only about one-eighth of the total amount consumed, there is evidently room for expansion in quantity and extension in quality of that processed; and when we consider that most of that carbonized so far is by high-temperature methods, we can understand that the author is able, in fact compelled to devote by far more space to the former than to the latter processes, although perhaps he might have dismissed the latter with a little more than a mere passing allusion to Ford and his intentions and beginnings in that line, and four pages of text.

Another excellent index of subjects aids the reader who has no immediate intention of going into the subject more deeply than this volume allows, while an index of authors is a guide to those who are tempted or compelled to delve still further into the mass of material already printed. R. G.

New Books Received

Handbuch der Eisen und Stahlgiesserei. Edited by C. Geiger. Pages 661, 8 x 11 in., illustrated. Published by Julius Springer, Linkstrasse 23-24, Berlin, W 9. Price, 49.50 goldmarks.

Versuche über Strömungsarten, Ventilwiderstand und Ventilbelastung. By E. Schrenk. Pages 62, 7½ x 10½ in., illustrated. Published by the Verein Deutscher Ingenieure, Beuthstrasse 7, Berlin SW 19. Price, 10 goldmarks.

Roof Standards. Federal Cement Tile Co., 608 South Dearborn Street, Chicago. In discussing tried methods of overcoming difficult roof conditions, this book of 32 pages contains 26 pages of blue prints giving dimensions, weights, stresses, pitches and details concerning the use of cement tile on various kinds of industrial and non-industrial structures. It is so bound as to lend itself to standard filing. It will be sent gratis.

BIRMINGHAM RATE UPHELD

Commerce Commission Grants Cut on Cotton Ties, However

WASHINGTON, Aug. 11.—The decision of the Interstate Commerce Commission holding that proposed reductions in rates on iron and steel products in carloads from the Birmingham district to the Houston, Tex., group, were not justified, except on cotton ties and buckles, brought out interesting data concerning the effect of water competition which the railroads filing the tariffs and the Southern producers claimed justified lower rates.

The tariff which had been filed by the southwestern railroads concerned, including the Louisville & Nashville, the Southern, St. Louis & San Francisco, proposed to restore the rates from the Birmingham district maintained prior to Sept. 1, 1924, thus disrupting the long-existing parity of rates with St. Louis and the relationship with iron and steel producing points in defined territories.

Some of the southwestern lines voted against the filing of the tariffs which now have been ordered canceled except as they relate to a reduction from 48c. to 33c. per 100 lb. in the rate on cotton ties and buckles. The Commission declared that none of the protestants, including iron and steel manufacturers on and north of the Ohio River, were interested in this rate. The reductions proposed were 3c. and 3.5c., except that on plates the reduction proposed was 16c., from 57c. to 41c. The proposed reduction on merchant iron was from 57c. to 53.5c. Like rates also had been proposed to intermediate points in Louisiana.

Prior to 1909, the rates on iron and steel articles to the Houston group from Birmingham were combinations based on the Mississippi river crossings. These combinations were higher than the corresponding rates from St. Louis. Since 1909 the rates from Birmingham have been the same as from St. Louis.

The southwestern railroads claimed that 95 per cent of the commodities covered by the proposed schedules move from the more limited Birmingham industrial district and Houston receives a greater tonnage from that district than any other point in the Houston group.

Although there is some foreign competition, the Commission said, it is undisputed that the chief competition in the Houston group met by the protestants and the Birmingham producers is with manufacturers in the Pittsburgh district and to the east, but mainly with mills close to the Atlantic ports of Philadelphia and New York.

The Commission in its summary referred to previous decisions, including those in the cases of Iron and Steel Articles from New Orleans and the Pensacola Chamber of Commerce, the results of which, it was stated, will enable the responding railroads to meet competition of the water route from Birmingham under a more favorable rate adjustment than that which would have resulted under the rates they proposed, with a continuance of the present total rate over that route.

GERMAN FOREIGN TRADE

Iron and Steel Exports and Imports in First Five Months

BERLIN, GERMANY, July 28.—The foreign trade balance in coal, steel and metal products continues to improve. Coal and coke exports in the first five months of 1925 totaled 7,000,000 tons, against 700,000 tons in the first five months of 1924. The movement in iron and steel and wares (excluding machinery) in the first five months of 1925 was:

	Metric Tons	
	Imports	Exports
Total	681,319	1,400,428
Thereof were:		
Pig iron	83,164	79,181
Scrap	150,836	129,040
Ingots, blooms, etc.	95,808	27,631
Bars, structural forms, bands	214,312	188,187
Sheets	31,316	173,660
Wire	24,791	117,749
Rails, ties, etc.	43,583	187,558
Agricultural implements	378	21,590
Tools, cutlery, etc.	652	14,130
Rivets, screws, etc.	699	14,112

Imports of machinery totaled 13,018 tons; exports, 142,824 tons. Average monthly exports of machinery were 28,500 tons, against 25,000 tons in 1924.

Expansion of American Business Journals Serving Foreign Fields

The United Publishers Corporation and the McGraw-Hill Co., Inc., have formed a new company to be known as the Business Publishers International Corporation to publish specialized papers to serve adequately the great development that is taking place in overseas trade and industry. The new company has taken over the foreign language and export papers now published by the two parent companies. These are *Ingenieria Internacional*, an engineering and industrial paper circulating in Spain and Latin America, heretofore published by the McGraw-Hill Co., and *El Automovil Americano* and the *American Automobile* (overseas edition), automotive business papers. Of the two automotive papers the former circulates throughout the Spanish reading countries and the latter in Australia, New Zealand, South Africa, India, Great Britain, Norway, Denmark, Holland, Belgium, the Orient and other territories. Both were formerly published by the United Publishers Corporation.

Officers of the new company will be Mason Britton, president; John Abbink, vice-president and general manager; J. L. Gilbert, vice-president and secretary; and C. A. Musselman, treasurer. Mr. Britton is vice-president of the McGraw-Hill Co. Mr. Abbink has been business manager of *Ingenieria Internacional* and Mr. Gilbert has been business manager of *El Automovil Americano* and the *American Automobile* (overseas edition). Mr. Musselman is president of the Chilton Class Journal Co., the automotive division of the United Publishers Corporation.

Headquarters of the Business Publishers International Corporation are at 225-241 West Thirty-fourth Street, New York. Plans have been completed by the new company for maintaining business and editorial representatives in important commercial centers abroad, their work being supplemented by correspondents in other localities.

Small Decrease in Steel Corporation's Unfilled Tonnage

Unfilled orders on the books of the United States Steel Corporation as of July 31 aggregated 3,539,467 tons—a decrease of 170,991 tons from those which remained unfilled on June 30. This decline is the smallest since the downward movement began. It compares with a decrease in March of 421,207 tons, which was the first decline since last July, with 416,996 tons in April, with 396,768 tons in May and with 339,342 tons in June. A year ago the unfilled business was 3,187,072 tons, or 352,395 tons less than for July 31, this year. Following is the unfilled tonnage as reported by months, beginning with January, 1923:

	1925	1924	1923
Jan. 31	5,037,323	4,798,429	6,910,776
Feb. 28	5,284,771	4,912,901	7,283,989
March 31	4,863,564	4,782,807	7,403,332
April 30	4,446,568	4,208,447	7,288,509
May 31	4,049,800	3,628,089	6,981,351
June 30	3,710,458	3,262,505	6,386,261
July 31	3,539,467	3,187,072	5,910,763
Aug. 31	.....	3,289,577	5,414,663
Sept. 30	.....	3,473,780	5,035,750
Oct. 31	.....	3,525,270	4,672,825
Nov. 30	.....	4,031,969	4,368,584
Dec. 31	.....	4,816,676	4,445,339

The high record in unfilled orders was 12,183,083 tons, at the close of April, 1917. The lowest was 2,674,757 tons, on Dec. 31, 1910.

Iron and Steel Markets

SOME AUGUST GAIN

Volume Better Than Prices—Improvement at Chicago

Railroad Work Leads in Structural Awards—More New Pipe Lines

August developments in the steel trade mainly repeat, with slight increases in orders and mill operations, the record of July. Thus far the indications are that September will not differ greatly in volume or in prices from the two summer months. The fact that the favorable factors in the situation outnumber the unfavorable is emphasized in producers' forecasts, in the absence of well defined signs of a broader movement.

The Steel Corporation's unfilled orders on July 31, which showed a decline of 171,000 tons in the month, and the steel ingot output in July, at 3.7 per cent less than the June rate, were both close to expectations and were taken, in connection with the market news of the week, as pointing to an upturn in output this month and perhaps a small increase upon the 3,540,000 tons on order books at the end of July.

All the indications of the week are that price maintenance, rather than price advances, is the aim of steel producers, seeing that buyers have no intention of changing their policy and giving the mills the backlogs on which any advance must rest.

Rail buying of the usual proportions is expected to develop in the near future, but uncertainty still hangs over the equipment situation. The two car works in the Pittsburgh district are practically closed and steel foundries there and other plants depending on railroad business are operating at a low rate.

The Illinois Central has entered the market for 1000 box cars and the Great Northern has placed 17,000 tons of rails, 10,000 tons with the Gary mill and 5000 tons with the Inland Steel Co.

Tin plate and wrought pipe continue to be the particularly bright spots in the situation. Tin mill operations are close to capacity, the largest maker now running 17 turns a week instead of 16, and enough business is in sight to keep all producers well employed through September.

Pittsburgh mills are making less prompt deliveries than in recent weeks on lap weld pipe over 8 in. in diameter. More gas and oil line contracts are in prospect. The Lone Star Co. will probably buy 75 miles of 18-in. pipe for Texas. The Petroleum Exploration Co. is in the market for 60 miles of 8-in. pipe for Kentucky and the Commercial Natural Gas Co. for 35 miles of 8-in. and 25 miles of 6-in. for Louisiana.

Chicago reports new August bookings in plates, shapes and bars in excess of shipments, the past week's bar orders of a leading mill being 50 per cent more than for the corresponding week in July.

Farm equipment demand has expanded more rapidly than was looked for and in some instances manufacturers have had to order bars out of stock.

Railroad work has figured largely in the week's structural business. For its Newark Bay bridge the Central of New Jersey has awarded 4750 tons. Other railroad awards and projects represent 13,500 tons, including 3500 tons for a Pennsylvania Railroad building at Philadelphia and 4200 tons for the New York subway. The Statler Hotel project, Boston, 8000 tons, is revived, and the Humble Oil Co. has placed 4500 tons for 15 oil storage tanks.

Galvanized sheets are quoted at an advance, but the large contracts just taken at the old price delay the establishment of the new level. Weakness in cold finished steel bars is more in evidence.

Spike makers have been in close competition on recent railroad business, one good sized order bringing out a $2.70 mill price, or $2 a ton below the general level.

Pig iron demand is increasing at Chicago, and 75,000 to 100,000 tons has been sold there since Aug. 1. In northern Ohio a fair business has been done also, but Valley furnaces have shown less than a firm front in late transactions. Offerings of foreign pig iron on the Eastern seaboard have widened the gap between domestic and import prices.

On the Pacific Coast a new low quotation on Belgian structural steel has appeared—1.74c., duty paid, San Francisco.

In various districts the steel scrap market still shows an upward trend, but the low price of pig iron prevents any like movement in foundry scrap.

British rail mills have booked 100,000 tons of steel rails for the Tanganyika Concessions, Central Africa, divided among several works.

Finished steel, as measured by THE IRON AGE composite price, remains at 2.439c. per lb. for the fourth successive week. One year ago it was 3.2 per cent higher.

Pig iron, according to THE IRON AGE composite price, has advanced to $19 from $18.96, which price had held for five weeks. One year ago it was 2 per cent higher.

Pittsburgh

Day-to-Day Buying But Slight Increase in Production

PITTSBURGH, Aug. 11.—A slight but distinct gain in the past week in ingot production in this and nearby districts is indicative not only of the sustained character of the demand but that manufacturers have confidence in immediate prospects. Output in the Youngstown district has moved upward and with Pittsburgh proper and the Wheeling district maintaining recent averages, it is estimated that present production of the combined areas is closer to 70 than to 65 per cent. The Jones & Laughlin Steel Corporation has put on another blast furnace, its second in the past 30 days, and now has eight of its 12 stacks in production. Other companies are making inroads on their stocks of cold iron in a way that suggests early resumptions by those which have idle stacks or the purchase of iron by those lacking in active capacity.

There has been no change in the general character of the buying. The market, excepting only pipe and

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 11, 1925	Aug. 4, 1925	July 14, 1925	Aug. 12, 1924
No. 2X, Philadelphia‡	**$21.51**	$21.26	$21.26	$21.26
No. 2, Valley Furnace†	18.50	18.50	18.50	19.00
No. 2, Southern, Cin'ti†	22.55	22.55	22.05	21.55
No. 2, Birmingham, Ala.†	18.00	18.00	18.00	17.50
No. 2 fdy., Chicago furnace*	20.50	20.50	20.50	20.50
Basic, del'd, eastern Pa.	20.50	20.50	21.50	20.00
Basic, Valley furnace	18.00	18.00	18.00	19.00
Valley Bessemer del. P'gh.	20.76	20.76	20.76	21.76
Malleable, Chicago furnace*	20.50	20.50	20.50	20.50
Malleable, Valley	18.50	18.50	18.50	19.00
Gray forge, Pittsburgh	19.76	19.76	19.76	20.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	115.00	115.00	115.00	99.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	35.00	35.00	35.00	38.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	38.00
O.-h. sheet bars, P'gh.	35.00	35.00	35.00	38.00
Forging billets, base, P'gh.	40.00	40.00	40.00	43.00
O.-h. billets, Phila.	40.30	40.30	40.30	43.17
Wire rods, Pittsburgh	45.00	45.00	45.00	46.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.00
Light rails at mill	1.60	1.60	1.70	1.85
Finished Iron and Steel				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.17	2.17	2.22	2.42
Iron bars, Chicago	1.90	1.90	2.00	2.20
Steel bars, Pittsburgh	2.00	2.00	2.00	2.15
Steel bars, Chicago	2.10	2.10	2.10	2.15
Steel bars, New York	2.34	2.34	2.34	2.49
Tank plates, Pittsburgh	1.90	1.90	1.90	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.25
Tank plates, New York	2.14	2.14	2.14	2.09
Beams, Pittsburgh	2.00	2.00	2.00	2.00
Beams, Chicago	2.10	2.10	2.10	2.25
Beams, New York	2.24	2.24	2.34	2.34
Steel hoops, Pittsburgh	2.40	2.40	2.40	2.60

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire	Aug. 11, 1925	Aug. 4, 1925	July 14, 1925	Aug. 12, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.15	3.15	3.10	3.40
Sheets, black, No. 28, Chicago dist. mill	3.30	3.30	3.30	...
Sheets, galv., No. 28, P'gh.	4.20	4.20	4.20	4.50
Sheets, galv. No. 28, Chicago dist. mill	**4.35**	4.30	4.35	...
Sheets, blue, 9 & 10, P'gh.	2.30	2.30	2.30	2.60
Sheets, blue, 9 & 10, Chicago dist. mill	2.40	2.40	2.45	...
Wire nails, Pittsburgh	2.65	2.65	2.65	2.80
Wire nails, Chicago dist. mill	2.70	2.70	2.70	...
Plain wire, Pittsburgh	2.50	2.50	2.50	2.55
Plain wire, Chicago dist. mill	2.55	2.55	2.55	...
Barbed wire, galv., P'gh.	3.35	3.35	3.35	3.50
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	...
Tin plate, 100 lb. box, P'gh.	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$17.50	$17.50	$17.00	$17.00
Carwheels, Philadelphia	18.50	18.50	17.00	17.50
Heavy steel scrap, P'gh.	**19.00**	18.50	17.50	17.50
Heavy steel scrap, Phila.	**16.50**	16.00	15.50	17.00
Heavy steel scrap, Ch'go.	16.25	16.25	15.50	15.50
No. 1 cast, Pittsburgh	17.50	17.50	17.00	18.00
No. 1 cast, Philadelphia	18.00	18.00	17.50	17.00
No. 1 cast, Ch'go (net ton)	17.50	17.50	17.50	17.50
No. 1 RR. wrot. Phila.	17.50	17.50	17.50	18.00
No. 1 RR. wrot. Ch'go (net)	**16.00**	15.00	14.00	13.75
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$2.90	$2.90	$2.75	$3.00
Foundry coke, prompt	3.75	3.75	3.75	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	**14.87½**	14.62½	14.25	13.75½
Electrolytic copper, refinery	**14.62½**	14.37½	14.00	13.37½
Zinc, St. Louis	**7.57½**	7.50	7.17½	6.17½
Zinc, New York	**7.92½**	7.85	7.52½	6.52½
Lead, St. Louis	**9.50**	8.90	8.00	7.60
Lead, New York	**9.50**	9.00	8.35	7.87½
Tin (Straits), New York	58.62½	59.25	58.25	51.62½
Antimony (Asiatic), N. Y.	**18.12½**	17.75	18.50	9.12½

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

Aug. 11, 1925, Finished Steel, 2.439c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.	One week ago.	2.439c.
	One month ago.	2.431c.
	One year ago.	2.517c.
	10-year pre-war average	1.689c.

Aug. 11, 1925, Pig Iron, $19.00 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.	One week ago.	$18.96
	One month ago.	18.96
	One year ago.	19.38
	10-year pre-war average.	15.72

High				Low		
1923	1924	1925		1925	1924	1923
2.824c. April 24	2.789c., Jan. 15	2.560c., Jan. 6	**Finished Steel**	2.424c., June 23	2.460c., Oct. 14	2.446c., Jan. 2
$30.86, March 20	$22.88, Feb. 26	$22.50, Jan. 13	**Pig Iron**	$18.96, July 7	$19.21, Nov. 3	$20.77, Nov. 20

tin plate, is still a day-to-day affair so far as demand is concerned. Consumers still can get the prompt deliveries they desire and consequently are not buying ahead of their real requirements. The mills are dependent upon daily business for their operating schedules, but the fact that mill and steel works activities are increasing denotes that actual requirements are growing and that stocks in consumers' hands are not so large that they can "live" on them. The situation now is comparable to that of a year ago, when consumers found it constantly necessary to buy, not for stock, but for actual needs.

The week has brought no changes in prices. Galvanized sheets are quoted at the advance of a week ago by almost all of the independent producers, but the acceptance of much tonnage prior to the advance delays full establishment of a new level. The average view of producers is that steel prices generally are too low, but it is recognized that until back-log business is built up, and that is slow work with buying so largely of a hand-to-mouth character, advances are not easily made or accepted.

Railroad buying or lack of it remains the mote in the eye of the trade. The two local car building plants are practically closed and foundry and other steel working plants dependent on railroad business are operating at a very low rate. Rail business of the usual proportions is expected confidently, but it is still

a moot question as to purchases of rolling stock. In other consuming channels, the situation is satisfactory, with some evidence of the good agriculture prospect crystallizing into steel business. The rush for tin plate still is heavy. Makers of pipe are falling behind in their deliveries on the larger sizes, this because of the demands from the oil and gas industry. The structural steel business is satisfactory except from a price standpoint.

A further advance in heavy steel scrap has put the price $3 a ton above the low point of early May and there is some tendency to urge that this must have an influence on semi-finished and finished steel prices. As a matter of fact, steel companies at no time have had much lower cost averages than the present and it is to be doubted that scrap values wield the influence they did in other years on steel prices.

The pig iron market is firm, but no excitement is apparent in that market over the prospect of a higher coke price in the event that hard coal operators and miners fail to reach an agreement.

Pig Iron.—In point of inquiry, the market has a livelier aspect but actual business still is light, as the buying is chiefly in small lots and all producers could take more business than they are getting. The Pennsylvania Railroad has asked for prices on 3000 tons of foundry iron, half low silicon and half high silicon. There is an inquiry for 2000 tons of foundry iron from a Newcomerstown, Ohio, melter, but this is accompanied by a bid of $18, which is at least 50c. a ton under what now is acceptable to makers. The Pressed Steel Car Co. has asked prices on 1000 tons of malleable iron and the General Electric Co. has issued an inquiry for a sizable tonnage for each of its several plants. A few small lots of Bessemer iron have changed hands at $19, Valley furnace, but basic iron business still is absent. The market is remarkable more for its steadiness than its activity. Recent prices are holding on all grades and for forward delivery the effort still is for getting a higher price than on prompt delivery iron. The melt of iron in this district is not heavy, but melters are taking shipments well and with new production light, the statistical position of the makers is improving. A Valley merchant producer has closed with a Youngstown steel company for a tonnage of coke for shipment over the remainder of the year and it is expected that one more merchant stack will be in production soon after the turn of next month. This producer claims to be oversold against stocks.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$18.00
Bessemer	19.00
Gray forge	18.00
No. 2 foundry	18.50
No. 3 foundry	18.00
Malleable	18.50
Low phosphorus, copper free	$27.75 to 28.00

Ferroalloys.—The market here is firm but not very active for ferromanganese. The Steel Corporation produces its own requirements, while the Jones & Laughlin Steel Corporation is in the same position, having bought a large tonnage of manganese ore prior to the imposition of the import duty. Other large steel companies in this district bought freely late last year and the fore part of this year and do not yet appear to have exhausted their supplies. Such demand as there is comes from the small consumers and the bulk of the business is in small tonnages for early shipment. Both domestic and foreign producers are firm at $115, Atlantic Seaboard, but the test of large demand is lacking. Interest in 50 per cent ferrosilicon is low and not much new business in spiegeleisen is reported. Prices are given on page 447.

Wire Products.—The business outlook for the remainder of the year is encouraging to the mills. Already there is some reflection of the fact that agricultural prosperity is virtually assured, manufacturers of fence who buy their raw material being much heavier buyers than usual. The farmers of the country have bought sparingly of fence and fence materials for about three years and with greater average returns for their products this year they are expected to have money to spend this year. In a general way, wire products business, though no strain upon the productive capacity of the country, is good for this time of the year. Prices are holding well, but that is to be expected in view of the complaint of producers that they are too low, particularly on nails. Prices are given on page 446.

Semi-Finished Steel.—Non-integrated steel makers are specifying against contracts for billets, slabs and sheet bars a little more freely than a short time ago in keeping with the enlarged volume of going finished steel business. Negotiations for fourth quarter tonnages are reported in progress. But taking it by and large, the market does not show real activity, because buyers do not have to supplement contract shipments to meet the demands upon them and makers are meeting their obligations with no difficulty. The market is steady rather than strong at $35, Pittsburgh, for these forms. The movement of wire rods is featured by the frequency rather than the size of the orders and specifications. Skelp is easy to secure at 1.90c. Prices are given on page 447.

Rails and Track Supplies.—There has been some improvement in the demand for light rails, but it is seen in the number rather than in the size of the inquiries. Buyers still are welcome visitors at steel company offices and treatment as to prices is gentle. In standard rails and rail accessories, the experience of local makers is that demand lacks snap. Prices of standard rails have reached the status of fixtures, but in other directions, the test of large demand is lacking and there is some uncertainty. Prices are given on page 446.

Tubular Goods.—The mills appear to have accumulated moderate backlogs in the larger sizes of lap-welded pipe and deliveries cannot be made as promptly as was true a short time ago in pipe more than 8 in. in diameter. This reflects the constant gain in the demands of the oil and gas companies over the past 60 days. They have been notably large in pipe for gas lines and much activity still is noted in that direction. The Lone Star Gas Co. is mentioned as a probable buyer of 75 miles and possibly more of 18-in. pipe for a gas line for central western Texas. The Petroleum Exploration Co. is in the market for 60 miles of 8-in. plain end pipe for a line in Kentucky and the Commercial Natural Gas Co., Shreveport, La., is getting prices on 35 miles of 8-in. and 25 miles of 6-in. for a line from Waskom to Long View, La. Buttwelded sizes are rarely in heavy demand at this season and this year is no exception. Pipe prices are firm, but this cannot be said of boiler tubes, sellers of which are more numerous than buyers. Discounts are given on page 446.

Sheets.—Although independent sheet manufacturers now are generally quoting galvanized at 4.30c., base, Pittsburgh, evidence is lacking that this price yet has found much basis in sales. A good deal of business was taken prior to the advance and some makers still are quoting the former price of 4.20c., base Pittsburgh. The effort to establish 3.20c., base Pittsburgh, on black sheets also is beset by the fact that buyers were allowed to place much tonnage at lower figures and there are still quotations at 3.15c. Locally, 2.30c., base, appeared to be the ruling figure on blue annealed sheets. Orders and specifications are constant enough, but in size still reflect a keen regard by buyers of their known requirements. Prices are given on page 446.

Tin Plate.—There is no abatement in the urgency of the demand and container manufacturers, not only are exerting pressure for shipments against contracts, but continue to provide against a shortage by liberal purchases of stock items. All companies are operating practically at capacity. The American Sheet & Tin Plate Co. is still running 17 instead of 16 turns a week and plans to keep this up through this month. There is enough business in sight to keep productive capacity well engaged through September and some makers are booked well into October. Favorable crop prospects are practically realized.

Cold-Finished Steel Bars.—Prices still suffer from the fact that while there is a good business, there is not enough to go round among producers and the competition has resulted in a further drop of $2 a ton to 2.50c.,

base Pittsburgh. This price represents a recession of $6 a ton, as compared with that ruling at the outset of the year; in the meantime, hot-rolled bars have dropped only $2 a ton, with the result that the spread between hot and cold bars has been narrowed $4 a ton. Some makers still have a quotation of 2.60c., base, on ordinary tonnages, but 2.50c. now is the ruling price on such lots.

Steel and Iron Bars.—There is a better run of orders in bars than in the other major products and mill operations are fairly high, despite frequent schedulings to meet the delivery requirements of buyers. The market here still is quotable at 2c., base Pittsburgh, and that price is said to be easily obtainable. Iron bars are not in heavy demand, but prices are holding. Prices are given on page 446.

Structural Steel.—The market here on ordinary tonnages still is 2c., base Pittsburgh, for large structural shapes, but the term "ordinary" means small tonnages, as jobs of a size usually call for special consideration. And as mills here would find poor engagement if dependent solely on the business of this district, they have to go outside and meet the competition of outside mills. The Carnegie Steel Co. will furnish 480 tons of sheet piling for Ohio River Dam No. 50. Prices are given on page 446.

Plates.—A good plate tonnage is embraced in recent barge awards, but it is pretty well split up and not helpful to the general market, which still depends on large pipe for its most constant outlet. The Pittsburgh district market still is 1.90c., base, Pittsburgh, but a much lower mill net has to be taken on business outside this area. Prices are given on page 446.

Hot-Rolled Flats.—Prices are firm at the recent base of 2.40c., Pittsburgh, for narrow material and 2.20c. for stock wider than 6 in. Demand is constant, but no tax upon the productive capacity. Prices are given on page 446.

Cold-Rolled Strips.—Makers are holding firmly in this district to 3.75c., base, Pittsburgh. Some who had rather generous order books have reduced them materially, but there is sufficient current business to maintain operations of around 65 per cent of capacity.

Bolts, Nuts and Rivets.—Buyers still are coming into the market frequently for small lots of bolts and nuts and makers here are finding total sales to be running a little ahead of last month. Prices are very firm. Rivet business could be better, but it is making as good a showing as could be expected with the railroad car shops so poorly engaged. Prices and discounts are given on page 447.

Coal and Coke.—The market maintains its recent firmness on coal, demand for which is increasing, notably in the domestic sizes, on account of fears of a suspension of the hard coal mines on Sept. 1. In prices, neither coke nor coal yet reflects that possibility. Spot furnace coke is firm at $2.90 to $3 per net ton at ovens but spot foundry grade is no more than steady at recent prices. The contract furnace coke market has been enlivened by the purchase of a local steel company of about 15,000 tons a month over the remainder of the year at a price slightly above $3 per net ton at ovens and a Valley merchant furnace, which will start up in the next 30 days, has bought its coke requirements from a Youngstown steel company at about $3, Connellsville base. Some business for last half of the year shipment was placed several weeks ago as low as $2.75, but the general average of third and fourth quarter tonnages is not far from $3. Prices are given on page 447.

Old Material.—Heavy melting steel scrap has been sold in rather big lots at $19.50, delivered at Vandergrift, Pa.; Steubenville, Ohio, and Midland, Pa., thus setting up a further advance of 50c. a ton and putting the market $3 a ton above its low point reached early in May. Sales for delivery at those points are estimated at 50,000 tons. Dealers who sold are bidding $19 and even ordinary heavy melting steel, which is not deliverable to recent buyers, is not to be had for less. The advance in this grade gives strength to sheet scrap, but the railroad specialties reflect in price the lack of steel foundry demand. Pig iron is too low priced for the iron foundries to be interested in cast scrap. Turnings and borings for open-hearth furnace use are scarce and very firm, but mixed borings and turnings, a blast furnace grade, still drag. The Pennsylvania Railroad secured as much as $19.75, delivered Pittsburgh district points, for the heavy steel scrap in its August list, and as high as $19.25 for scrap rails. The Norfolk & Western list, bids against which close Aug. 14, contains 9398 gross tons.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	$19.00 to $19.50
No. 1 cast, cupola size	17.50 to 18.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md., Huntington, W. Va., and Franklin, Pa.	20.00 to 20.50
Compressed sheet steel	17.50 to 18.00
Bundled sheets, sides and ends	16.50 to 17.00
Railroad knuckles and couplers	20.50 to 21.00
Railroad coil and leaf springs	20.50 to 21.00
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plate and other material	21.00 to 21.50
Railroad malleable	18.50 to 19.00
Steel car axles	20.50 to 21.00
Cast iron wheels	17.50 to 18.00
Rolled steel wheels	20.50 to 21.00
Machine shop turnings	15.00 to 15.50
Short shoveling turnings	15.00 to 15.50
Sheet bar crops	19.50 to 20.00
Heavy steel axle turnings	16.50 to 17.00
Short mixed borings and turnings	14.00 to 14.50
Heavy breakable cast	16.50 to 17.00
Stove plate	14.00 to 14.50
Cast iron borings	15.00 to 15.50
No. 1 railroad wrought	15.50 to 16.00
No. 2 railroad wrought	19.00 to 19.50

James A. Campbell Says Wages Cannot Well Be Reduced Now

YOUNGSTOWN, Aug. 11.—Steel makers in the Mahoning Valley declare there are no prospects at present of a wage reduction for workers in the industry. President James A. Campbell of the Youngstown Sheet & Tube Co. has commented on the fact that steel employees' wages could not very fairly be reduced, so long as wages of union coal miners, railroad workers and building tradesmen remain at their present levels. It is felt in this section that a wage reduction would tend to lower living standards and would curtail the purchasing power of an important group.

Carnegie Steel to Dismantle Painter Mills

PITTSBURGH, Aug. 11.—The Carnegie Steel Co. continues to withdraw from Pittsburgh, where high land assessments and taxes are making too costly the use of industrial sites within the city limits. The company has ordered the dismantling of its painter mills on Carson Street on the south side of the city. Some time ago it dismantled the lower Union Mills at Thirty-third Street and the upper Union Mills at Thirty-third Street, and the Clark Mills at Thirty-fifth Street are the next to pass out of the picture.

These are all hand mills and there was the item of costs as well as taxes in prompting the company to abandon them. They were devoted to bars, bands, hoops and small angles, all of which now are produced more cheaply at its Duquesne, Pa., and McDonald, Ohio, plants.

May Take Up Tin Can Making

A group of sales officials of the Trumbull Steel Co., Warren, Ohio, is planning to enter the manufacture of tin cans, and it is proposed to utilize as a manufacturing property a plant on the westerly outskirts of Warren built several years ago by the Ward Baking Co. as a research laboratory and for manufacturing. This plant, comparatively new, is in first class condition. While this project is being sponsored by sales officers of the Trumbull company, it is understood the latter interest has no direct connection with it. Last year the Trumbull company disposed of a subsidiary can making interest at Baltimore, Md.

Chicago

Improved Railroad Buying—Still Irregularities in Prices

CHICAGO, Aug. 11.—The Great Northern has placed 12,000 tons of rails with the Gary mill and 5000 tons with Inland Steel Co., in addition to the 10,000 tons ordered from the Bethlehem Steel Co. last week. Other railroads are making up their rail budgets, and there is apparently every prospect for a broad buying movement. Railroad car inquiries are few, but the Illinois Central has entered the market for 1000 box cars. The appearance of this inquiry so soon after the purchase of 1000 cars for its subsidiary, the Central of Georgia, is regarded as significant, and it is intimated that when actual orders are distributed they will total several times the 1000 car inquiry. The future of railroad equipment buying, however, is still decidedly uncertain.

Steel bookings from other sources, however, are in encouraging volume, and are showing a tendency to expand. The soft steel bar commitments of a leading local mill during the first week in August were 50 per cent larger than those for the corresponding week in July. New business in bars, plates and shapes is now in excess of shipments, and if this relationship continues it may be necessary to increase operations, with the likelihood that the bar mills will be affected first.

Present indications do not point to any material change in the rate of ingot output this month. The market appears to be headed for gradual rather than rapid improvement, and even though bookings in some commodities have shown reassuring gains, mills are not disposed to risk an increase in output until they have built up backlogs.

Among the various consuming industries, the farm implement and automobile manufacturers are still conspicuous. Demand for farm equipment has expanded more rapidly than was anticipated, and in some instances manufacturers have found it necessary to order bars out of stock because they could not wait for mill shipment. Automobile production is far ahead of what it was a year ago at this time. In the building field there are signs of reaction, particularly so far as residential construction is concerned. Prospects for structural and reinforcing business are still regarded as fairly promising.

On the whole, the price situation appears to be gathering strength, although not yet free from irregularities in some commodities. Sheets are firm and a number of mills have advanced galvanized. It is interesting to note that buyers are anxious to place forward contracts for galvanized even at the advanced quotations but that mills are reluctant to commit themselves for any extensive period owing to the rise of spelter. Plates are steady at 2c., Chicago, and shapes and soft steel bars are holding remarkably well in the face of reports of occasional concession on attractive tonnages.

Cold finished steel bars and shafting have declined $2 a ton to 2.50c., Chicago.

Steel production in this district remains unchanged at 75 per cent of ingot capacity. The number of active steel works blast furnaces has declined to 22, out of a total of 35. The loss of one furnace is accounted for by the blowing out of a Wisconsin steel works stack for relining.

Pig Iron.—Demand has been gradually gathering momentum since the first of the month and an increasing number of sales are being made for fourth-quarter delivery. Bookings thus far this month are surprisingly large and probably total 75,000 to 100,000 tons for the entire Chicago district. While no immediate increase in production is contemplated by merchant furnaces, their output is fully engaged for this quarter and partly into the fourth. The blowing out of a Wisconsin steel works stack for relining appears to reduce the possibility of early merchant offerings from steel companies. Shipments for merchant stacks continue to gain and it is now believed that August deliveries will exceed those of July, which in turn were heavier than those of June. There are no definite indications of an early advance in local prices, although it is believed that the next change will be in that direction. Southern furnaces have advanced quotations $1 a ton, although there have been no sales in this district at the new price. Southern foundry for barge and rail shipment remains unchanged at $18.50, base furnace, or $22.68 delivered, Chicago. A sale of 200 tons on that basis is reported. A Wisconsin melter is inquiring for 1500 tons of foundry for early shipment. A sale of 500 tons of charcoal at $26, base furnace, indicates that the price on that commodity is unchanged. A Michigan melter is inquiring for 150 tons of 7 per cent silvery, while an Illinois user wants 100 tons. Silvery prices are growing firmer.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$20.50
Northern No. 1 foundry, sil. 2.25 to 2.75	21.00
Malleable, not over 2.25 sil.	20.50
High phosphorus	20.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	$23.51 to 24.51
Southern No. 2 (barge and rail)	22.68
Low phos., sil. 1 to 2 per cent, copper free	31.20
Silvery, sil. 8 per cent	$29.79 to 30.79
Electric ferrosilicon, 14 to 16 per cent	44.50 to 44.79

Ferroalloys.—A number of inquiries for spiegeleisen ranging from carlots to 200 tons are still unclosed. Prices on this commodity are said to have advanced but as yet there have been no sales in this district to indicate it. Effective Aug. 15 the freight to Chicago from Hazard, Pa., leading producing point, will be reduced to $7.76. Outside of an inquiry for 200 tons from the St. Louis district, ferromanganese is quiet.

We quote 80 per cent ferromanganese, $122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, $85, delivered; spiegeleisen, 18 to 22 per cent, $38.58 to $40.04, delivered.

Plates—The Illinois Central has entered the market for 1000 box cars and it is possible that several times that number will be bought if prices are attractive. The 10,000 tons of steel required for the 1000 box cars bought last week by the Missouri-Kansas-Texas has not yet been placed. The Humble Oil Co. has placed 15 oil storage tanks, 4500 tons, with the Reeves Mfg. Co., which will fabricate them at its Birmingham plant. The Continental Oil Co. is inquiring for tanks, requiring 1000 tons, for erection at Sapulpa, Okla. Plates are not entirely firm, but appear to be gaining in strength.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plate out of stock.

Bars.—The week's bookings in soft steel bars for a leading mill were 50 per cent heavier than the corresponding week in July. Moreover the new business taken exceeded shipments. The expansion in bar demand has been one of the most encouraging developments of the market. Tonnage is coming from well diversified sources with jobbers, implement makers and automobile manufacturers leading as buyers. Farm equipment makers are enjoying the best business in five years. Prices are gaining in stability at 2.10c., Chicago, although reports of shading have not entirely disappeared. Demand for bar iron is expanding gradually, but without strengthening prices, which continue to range from 1.90c. to 2c., Chicago. The Chicago Heights rail steel bar mills continue to run double turn. Rail steel is unchanged in price.

Mill prices are: Mild steel bars, 2.10c.; common bar iron, 1.90c. to 2c., Chicago; rail steel, 2c., Chicago and 2c., mill.

Jobbers quote 2c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Structural Material.—The building outlook is not so favorable as it has been. Fabricating awards are declining and less prospective work is making its appearance. The principal fabricators, however, are comfortably booked, in a few cases several months ahead. The largest structural letting of the week, improvements for the local elevated railways, 2500 tons,

went to the Hansell-Elcock Co. Plain material is fairly steady, although not altogether inflexible, at 2.10c., Chicago.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Rails and Track Supplies.—The railroads are preparing their rail budgets for next year and a liberal buying movement is expected to develop within a few weeks. It is also regarded as significant that a number of large roads which had held up specifications on their contracts are now releasing them. The cotton belt is expected to take early action on its pending inquiry for 15,000 tons of rails and the Great Northern also will probably distribute orders shortly for 15,000 to 20,000 tons in addition to the 10,000 placed last week. Current orders for track supplies are confined largely to miscellaneous small lots for early shipment. However, a single lot of 1800 tons of tie plates has been booked by a local mill

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c. base, and track bolts, 4.55c. base.

Bolts, Nuts and Rivets.—Bolt and nut makers continue to receive a good volume of specifications from the automobile and implement makers, the railroads, jobbers and miscellaneous consumers. Discounts on bolts are holding steadily, but nuts are tending toward weakness. The operations of bolt makers average 70 per cent; a number of individual plants are doing even better. Rivets remain exceedingly weak. For prices see page 446.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to ⅞ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to ⅞ x 4 in., 50 off; larger sizes, 50 off; hot-pressed nuts, squares, tapped or blanked, $3.50 off; hot-pressed nuts, hexagons, tapped or blank, $4 off; coach or lag screws, 60 per cent off.

Sheets.—Prices are not only firm but on galvanized have actually advanced. One important maker has raised its galvanized quotation to 4.40c., mill or 4.45c., Chicago, and the lowest current quotation is 4.35c., mill, or 4.40c., Chicago, an advance of $1 a ton over the previous minimum. So far as galvanized is concerned there is no hesitancy on the part of buyers to place orders. In fact the mills are reluctant to take business except for relatively early shipment because of uncertainty as to spelter prices which have been steadily advancing.

Chicago delivered prices from mill 3.35c. to 3.40c. for No. 28 black, 2.45c. to 2.50c. for No. 10 blue annealed and 4.40c. to 4.45c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4c. base for black, and 5c. base for galvanized.

Cast Iron Pipe.—Pipe manufacturers are committed from 40 to 60 days ahead and prices are held at the figures quoted below.

We quote per net ton f.o.b. Chicago, as follows: Water pipe, 4-in., $53.20 to $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4 extra.

Wire Products.—Buying showed a noticeable improvement in the first week of August and a continuation of the present rate of activity will make the month one of the best of the year. Contracting is not yet in full swing but a number of important jobbers have covered for their fall needs and it seems reasonable to expect that others will follow suit. From a technical standpoint the situation is strong, the stocks of both jobbers and mills being low. Thus far better demand has been felt in all lines except woven wire fencing. Country jobbers are showing more interest in the market than city jobbers, who are less optimistic owing to their dependence upon the building industry. The price situation is firmer, less being heard of concessions below the prices shown on page 446.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, $3.05 per 100 lb.; common wire nails, $3.15 per keg; cement coated nails, $2.25.

Cold Rolled Steel Bars and Shafting.—The volume of business keeps up, but competition has again forced prices down, this time to 2.50c., Chicago. This is a decline of $2 a ton.

Reinforcing Bars.—The volume of activity in reinforcing steel shows no appreciable contraction and it is now thought that the summer will pass without developing a lull in business. Awards are numerous and pending work includes a number of very large projects, among them the Stevens Hotel, 1600 tons, Section 11 of the South Water Street double decking, Chicago, 1300 tons, and the Ford Avenue Bridge, St. Paul, Minn., 1700 tons. Billet steel reinforcing bars are unchanged at 2.60c., Chicago warehouse. Lettings include:

Wendell Phillips public school, Minneapolis, 330 tons, to C. A. P. Turner Co.

Maria Sanford public school, Minneapolis, 300 tons, to C. A. P. Turner Co.

Kankakee high school, Kankakee, Ill., 200 tons, to Olney J. Dean & Co.

Continental Can Co. building, Chicago, 150 tons, to Olney J. Dean & Co.

North Shore Sanitary District, Sewage treatment plant between Waukegan and Lake Forest, Ill., 117 tons, to Concrete Steel Co.

Reservoir, Downers Grove, Ill., 100 tons, to Olney J. Dean & Co.

Ranes Hotel, Chicago, 100 tons of rail steel, to Olney J. Dean & Co.

Apartment building, Seventy-ninth Street and Cottage Grove Avenue, Chicago, 110 tons, to Joseph T. Ryerson & Son.

Burke Manor apartments, Chicago, 125 tons of rail steel, to Calumet Steel Co.

Pending work includes:

Ford Avenue Bridge, St. Paul, Minn., 1700 tons.

Garage, Norman & Peters, Chicago, 120 tons, L. E. Russell, architect.

Apartments, Maple and Dearborn Streets, Chicago, 130 tons, Oldefest & Williams, architects.

South Park board, Chicago, Tully Park natatorium, 100 tons.

Dance pavilion, Lawrence and Winthrop Avenues, Chicago, 256 tons, general contract awarded to Longacre Construction Co.

Wolford Hotel, Danville, Ill., 400 tons, Hall, Lawrence, Rippel & Radcliffe, Chicago, architects.

Fort Armstrong Hotel, Rock Island, Ill., 150 tons, general contract awarded to Fleischer Construction Co., Minneapolis.

Portland Cement Association building, Chicago, 125 tons, general contract awarded to Turner Construction Co.

Goose Creek municipal sewer, Kansas City, Mo., 4000 tons, general contract awarded to Thorsen Contracting Co., Kansas City.

Bridge over Tennessee River, Albany, Ala., 300 tons, general contract awarded to Koss Construction Co., Des Moines, Iowa.

Old Material.—Consumers are buying somewhat more freely, but in most instances are confining their purchases to small lots. Users of heavy melting, however, remain out of the market, being unwilling to pay what dealers are asking. Meanwhile, prices continue to advance principally as a result of speculative activity. Railroad lists include the Great Northern, 5700 tons; the Northern Pacific, 1550 tons, and a number of small tonnages.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	$17.50 to $18.00
Cast iron car wheels	17.50 to 18.00
Relaying rails, 56 to 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	20.00 to 20.50
Railroad tires, charging box size	20.00 to 20.50
Railroad leaf springs, cut apart	20.00 to 20.50
Rails for rolling	19.00 to 19.50
Steel rails, less than 3 ft.	20.00 to 20.50
Heavy melting steel	16.25 to 16.75
Frogs, switches and guards, cut apart	17.50 to 18.00
Shoveling steel	15.75 to 16.25
Drop forge flashings	11.50 to 12.00
Hydraulic compressed sheets	14.00 to 14.50
Axle turnings	14.25 to 14.75
Steel angle bars	19.50 to 20.00
Steel knuckles and couplers	19.50 to 20.00
Coil springs	20.50 to 21.00
Low phos. punchings	19.00 to 19.50
Machine shop turnings	9.75 to 10.25
Cast borings	12.50 to 13.00
Short shoveling turnings	12.50 to 13.00
Railroad malleable	19.00 to 19.50
Agricultural malleable	18.50 to 19.00
Per Net Ton	
Iron angle and splice bars	16.75 to 17.25
Iron arch bars and transoms	20.50 to 21.00
Iron car axles	27.00 to 27.50
Steel car axles	17.00 to 17.50
No. 1 busheling	13.00 to 13.50
No. 2 busheling	8.50 to 9.00
Pipes and flues	11.00 to 12.00
No. 1 railroad wrought	16.00 to 16.50
No. 2 railroad wrought	14.50 to 15.00
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	17.50 to 18.00
No. 1 agricultural cast	16.50 to 17.00
Locomotive tires, smooth	16.00 to 16.50
Stove plate	15.50 to 16.00
Grate bars	15.50 to 16.00
Brake shoes	15.50 to 16.00

New York

Pig Iron Inquiry for 1926—Steel Buying Below Expectations

NEW YORK, Aug. 11.—Buying of pig iron in the metropolitan district has continued on the restricted scale of the past few weeks. Orders through local offices from melters in New York and New Jersey territory have amounted to about 6000 tons in the week, for the most part in lots of 500 tons down. Connecticut and Rhode Island have developed some little inquiry, but important New England business of the week has been in Massachusetts, as reported elsewhere. A locomotive company is inquiring for 250 tons for fourth quarter delivery at its New Jersey and Virginia shops. The Lackawanna road is buying 100 tons of foundry iron. The interesting development is the appearance of inquiries for delivery in the first quarter of 1926. While the Middle West has had considerable inquiry for deliveries running into next year, there has been comparatively little until the past week in the East. Competition of foreign iron in New England territory is more talked of. A quotation of $20.96, c.i.f., Boston, duty paid, was recently made on Dutch iron, the equivalent of No. 1X. This is nearly $3 a ton below the basis of corresponding iron from the Buffalo district. There are further offerings of Indian and German iron in the East on a basis that has militated against efforts of domestic makers to advance their prices. Foundry operations have been maintained for some weeks on the midyear level, and there are reports of increases. Several New England foundries which have been running four days a week have gone to a five-day operation.

We quote delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$22.52 to $22.77
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	23.02 to 23.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.52 to 23.02
Buffalo, sil. 1.75 to 2.25	23.41 to 23.91
No. 2 Virginia, sil. 1.75 to 2.25	28.44

Ferroalloys.—The feature of the market is the sale of fairly large quantities of ferromanganese for fairly prompt shipment. Over 1000 tons is estimated to have been sold for this delivery to several consumers. Besides this there have been fairly liberal sales of small lots for delivery this year and it is claimed that there has been no concession from the regular price. Inquiries before the market involve 2000 to 3000 tons. Some consumers who have been holding off for lower prices have been obliged to make purchases because of a larger output of steel than expected. The spiegeleisen market has been fairly active at unchanged prices.

Finished Iron and Steel.—Steel buying so far this month has not been up to expectations and in this sense has been a disappointment. The volume is probably as large as that of July, but there had been a general supposition that a gradually expanding demand would develop early in August. Such has not been the case. Lack of railroad buying is perhaps a deterrent factor, and it is recalled that just one year ago next week railroad buying of cars took on great activity following a dull summer. At the present time there are no railroad inquiries of any importance pending and no certain indications that the railroads will come into the market for equipment within the near future. The price situation shows no signs of strength, despite efforts of sheet manufacturers to advance quotations on galvanized and black sheets. The first break in the steel bar price in the East has come with sales of lots below 100 tons at 1.90c., Pittsburgh, by one of the leading makers. This price has by no means become general even with this one seller, and other mills continue to quote 2c., although disturbed by the lower-priced competition. Plates are 1.80c., Pittsburgh, and lots as small as a carload can be purchased at that figure, with some buyers insisting that they are able to do better, 1.75c. having been mentioned. Structural shapes continue at 1.90c., Pittsburgh, on the bulk of the tonnage, but sales have been made at 1.85c. Makers of cold finished steel have reduced quotations to 2.50c., Pittsburgh. There have been sales for weeks at this figure, but it has not until now become an open price. Most of the sheet manufacturers are now asking 4.30c. for galvanized and 3.20c. for black sheets, but they are not yet getting these prices in any great number of cases. Sales of galvanized have been made at 4.20c. and of black at 3.10c. and 3.15c. during the past week. About 1200 tons of concrete reinforcing bars for piers at Canarsie, Brooklyn, are being brought down by barge from a Buffalo mill. A creamery warehouse at Buffalo will require about 300 tons of reinforcing bars.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.24c. to 2.34c.; plates, 2.14c. to 2.24c.; structural shapes, 2.14c. to 2.24c.; bar iron, 2.14c. to 2.24c.

Warehouse Business.—For the season movement out of stock is fairly active. The largest independent in this district finds that July was the best month of the year in volume. Today, orders are fewer but larger and more profitable to handle. On galvanized sheets 4.90c. for No. 28 gage appears to be the minimum and 3.90c. on black. However, movement in these is not brisk. Structural steel and bars are strong. Brass sheet, rod, tube and wire have been marked up and hot rolled sheet copper is now at 22c. to 23c. per lb. base. For prices see page 460. We quote boiler tubes per 100 ft. as follows:

Lapwelded steel tubes, 2-in., $17.33; seamless steel, 2-in., $20.24; charcoal iron, 2-in., $25; 4-in., $67.

Cast Iron Pipe.—There is less activity in the demand for bell and spigot pipe, but prices continue unchanged. The Department of Purchase, City of New York, will open bids on about 9000 tons of pipe and fittings on Sept. 15. Pont-a-Mousson works was not low on the third opening of bids on water pipe for the Panama Canal and the contract involving 2200 tons of 30-in. pipe went to American makers, as reported elsewhere. The soil pipe market continues unstable with discounts up to 50 off on light and 60 off on heavy still obtainable, but less generally than a few weeks ago.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $50.60 to $51.60; 4-in. and 5-in., $55.60 to $56.60; 3-in., $65.60 to $66.60, with $5 additional for Class A and gas pipe. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 45 to 50 per cent off list; heavy, 55 to 60 per cent off list.

Old Material.—There is a fair volume of activity and prices continue firm with an upward tendency. Although brokers claim to be purchasing No. 1 heavy melting steel at $16 to $16.50 per ton, delivered eastern Pennsylvania, apparently but little steel is coming out at the $16 price, while $16.50 and $17, depending upon the shipment is understood to have been paid by some brokers. The firm position of the Pittsburgh market where $19 per ton and better is paid by brokers has resulted in the shipment of some steel from this district, the freight rate of $5.30 per ton bringing the New York price on such shipments to $13.70 per ton. While there is apparently no shortage of scrap at present, it is only the higher offering prices of brokers that bring out much material and visible stocks are not reported as large.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$11.75 to $12.25
Heavy melting steel (railroad or equivalent)	13.25 to 13.75
Rails for rolling	14.00 to 14.50
Relaying rails, nominal	23.00 to 24.00
Steel car axles	21.00 to 21.50
Iron car axles	24.00 to 24.50
No. 1 railroad wrought	14.00 to 14.50
Forge fire	10.50 to 11.00
No. 1 yard wrought, long	13.00 to 13.50
Cast borings (steel mill)	9.50 to 10.00
Cast borings (chemical)	13.00 to 14.00
Machine shop turnings	9.25 to 10.00
Mixed borings and turnings	9.00 to 9.50
Iron and steel pipe (1 in. diam., not under 2 ft. long)	12.00 to 12.50
Stove plate	10.50 to 12.00
Locomotive grate bars	11.00 to 11.50
Malleable cast (railroad)	15.00 to 15.50
Cast iron car wheels	13.50 to 14.00
No. 1 heavy breakable cast	13.00 to 13.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$17.50 to $18.00
No. 1 heavy cast (columns, building material, etc.), cupola size	16.00 to 16.50
No. 2 cast (radiators, cast boilers, etc.)	15.00 to 15.50

San Francisco

New Price Weakness Develops in Plates and Shapes—Buying Moderate

SAN FRANCISCO, Aug. 8 (*By Air Mail*).—Lower quotations were made during the past week in both plates and shapes. Plates are now quoted at 2.30c., c.i.f. Coast ports, for round tonnages, and shapes at 2.35c., which, in each case, is $1 a ton below previous quotations. These new prices have occasioned some surprise, because, up to a week or ten days ago, there were more or less definite indications that Eastern mills would endeavor to maintain minimum prices at 2.35c. on plates and 2.40c. on shapes. A new low quotation in Belgian shapes was made to three different buyers during the week. Twelve-inch I-beams not exceeding 40 ft. were quoted at 1.74c. base, c.i.f., duty paid, San Francisco. Mill prices in reinforcing bars are somewhat weaker, also. About 200 tons of reinforcing bars for stock is understood to have been placed during the week with an Eastern mill at a price below 2.45c., c.i.f. San Francisco. Another development of the week was a slight improvement in the number of small orders for material from stock, but no large business has come into the market. The Standard Oil Co. has placed 2000 base boxes of tin plate, for shipment to Honolulu, with an Eastern mill. A fresh inquiry for 280 tons of 60-lb. rails has come up, but this is not expected to be placed for several weeks.

Pig Iron.—No fresh inquiries have been developed. The Southern Pacific Co. has placed 500 tons of its recent inquiry for foundry iron. No price changes have been made in either domestic or foreign irons. Although there has been a scattering of small sales recently, general buying in iron is quiet along the entire Coast.

*Utah basic	$27.00 to $28.00
*Utah foundry, sil. 1.75 to 2.25	27.00 to 28.00
**English foundry	27.00 to 28.00
**Belgian foundry	26.00
**Dutch foundry	25.00
**Indian foundry	26.50
**German foundry	26.50
*Birmingham, Ala., foundry, sil. 2.75 to 3.25	29.00 to 30.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Ferroalloys.—About 100 tons of Swedish ferrosilicon was received by two local importers during the week. Ferrosilicon is quoted at $93, duty paid, incoming dock. English ferromanganese is quoted $117.50, duty paid, incoming dock.

Shapes.—Awards amounted to 1375 tons. The largest letting of the week was taken by Baker Iron Works, 900 tons for a Y. W. C. A. building in Los Angeles. The Bank of Italy job in San Jose is expected to be awarded next week. This will require about 1000 tons, instead of 600 as previously reported. Bids are to be called soon for a warehouse for John Roebling's Sons Co. in San Francisco, which will require about 500 tons. Prices are weaker, 2.35c., c.i.f. Coast ports, now being named for desirable tonnages. Some mills are continuing to quote 2.45c., for smaller orders, but 2.40c. is more general.

Plates.—The Southern Pacific Equipment Co. has placed 2200 tons of plates and shapes with an unnamed Eastern mill, and has still to place 800 tons. It has also placed 140 tons of plates, small shapes and bars with Eastern and local mills. The Pacific Coast Engineering Co. has taken 100 tons for four mine cars for an unnamed California mining company. No fresh inquiries have come into the market. Prices are weak, with 2.30c., c.i.f. Coast ports, now being quoted as the minimum for round tonnages. Smaller orders are being placed at about 2.35c.

Bars.—Individual lettings in reinforcing bars are nearly all for lots of less than 100 tons. There are a number of small lettings, however, which, during the past week, aggregated about 800 tons. Slightly better interest is being shown in soft steel bars, although buying is not large. Local mills continue to quote 2.45c., f.o.b. San Francisco, in 100-ton lots, and 2.50c. per 100-lb. base. Reinforcing bars are quoted on an out-of-stock basis as follows: 3.25c., base, 250 tons or more, 3.35c., base, carload, 3.80c. base, l.c.l. Only two jobs requiring 100 tons or more were closed during the week. These were: Nevada County Irrigation District, Grass Valley, Cal., 307 tons to an unnamed San Francisco jobber; San Jose Avenue bridge, San Francisco, Cal., 100 tons, to Steel Service Co.

Warehouse Business.—Some slight improvement in buying has been noted since the first of the month, but most of the orders that are being placed are for small quantities. Prices are unchanged.

Merchant bars, $3.30 base, per 100 lb.; merchant bars, ⅜ in. and under, rounds, squares and flats, $3.80 base, per 100 lb.; soft steel bands, $4.15 base, per 100 lb.; angles, ⅜ in. and larger x 1½ in. to 2¾ in., inc., $3.30 base, per 100 lb.; channels and tees, 3 in. to 2¾ in., inc., $3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, $3.30 base, per 100 lb.; tees, 3 in. and larger, $3.30 base, per 100 lb.; universal mill plates, ¼ in. and heavier, stock lengths, $3.30 base, per 100 lb.; spring steel, ¼ in. and thicker, $6.30 base, per 100 lb.; wire nails, $3.50 base, per 100 lb.; cement coated nails, $3 base, per 100 lb.; No. 10 blue annealed sheets, $3.70 per 100 lb.; No. 28 galvanized sheets, $5.75 per 100 lb.; No. 28 black sheets, $4.65 per 100 lb.

Sheets.—Very little buying is being done at present. Since Aug. 1, some of the Eastern mills have been quoting galvanized sheets at 4.30c., Pittsburgh, but this figure is apparently nominal, and better than 4.20c., Pittsburgh, could probably be obtained with a good order. Blue annealed sheets are 2.30c. and black sheets 3.15c., Pittsburgh.

Coke.—A local importer received 2000 tons of English coke during the week, most of which has been sold here and in the South. Prices are somewhat firmer, which is attributed to the unsettled industrial conditions in Europe. Local demand is slightly more active than it has been, although few large orders are being placed.

English beehive, $16 at incoming dock, and English by-product, $14; German by-product, $14 to $14.50; Birmingham, Ala., by-product, $19 delivered; Wise County, Va., beehive, $22 delivered.

Cincinnati

Iron Sold for First Half of 1926—Scrap Higher

CINCINNATI, Aug. 11.—Pig iron buyers are displaying considerable indifference, but movement of small lots continues at a moderate rate. Sales in the past week totaled 7000 tons. The outstanding feature was the purchase of 3300 tons of Northern foundry by a southern Ohio melter for delivery in the first half of 1926. A Lake furnace is reported to have taken this business. Northern iron in the Ironton district is bringing $19.50, furnace, while one seller is quoting $20, Ironton, on fourth quarter inquiries. The Marting Iron & Steel Co., Ironton, Ohio, has banked its Ironton furnace. Activities in malleable iron have been unimportant, although a Detroit melter has taken 350 tons. Small quantities of Tennessee iron are being disposed of by local dealers at $17.50, Birmingham. Sales of Alabama iron have been a minor factor in the local market. The price varies from $18.50 to $20, Birmingham. Purchase of 350 tons of Southern charcoal iron by a melter in this district is noted. Bookings of silvery iron have been negligible, but prices are said to be firming up. Few inquiries have come out, the largest being for 1500 tons of Northern foundry for a Hamilton, Ohio, consumer. A Louisville, Ky., melter is in the market for 800 tons of foundry iron, while the Southern Railway is asking for quotations on a small tonnage. A Northern Ohio melter is inquiring for 400 tons of Southern iron. Inquiry has been made by a St. Louis consumer for 100 to 200 tons of ferromanganese for fourth quarter shipment. Many buyers are inclined to come into the market often for small ton-

nages rather than attempt to anticipate their future needs.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Alabama, fdy., sil. 1.75 to 2.25 (base)	$22.55 to $23.05
Alabama fdy., sil. 2.25 to 2.75	23.05 to 23.55
Tennessee fdy., sil. 1.75 to 2.25	21.55
Southern Ohio silvery, 8 per cent	28.27
Southern Ohio fdy., sil. 1.75 to 2.25	21.77
Southern Ohio, malleable	21.27 to 21.77

Bars, Shapes and Plates.—Sellers are expressing satisfaction with the trend of the market. While sales are almost exclusively confined to small lots for early shipment, the volume of orders mounts each week to a substantial figure. Bookings are considered to be slightly above normal for mid-summer and a spirit of optimism exists regarding fall business. Reports from the farming regions of Indiana and Ohio declare that crops are good and that farmers will have considerable money to spend this autumn. Prices have been stabilized in finished steel and, despite the attempt of consumers to secure more favorable quotations, are holding firm at the prevailing schedule. Sellers believe that a further drop in prices is improbable, due partly to the adjustment of output to consumption. Bar movement has been fairly steady, with no change recorded from the quotation of 2c., Pittsburgh. Little interest is being manifested in plates. The price remains at 1.85c. to 1.90c., Pittsburgh. Demand for shapes is light. They are obtainable at 2c., Pittsburgh. Operations in structural steel have receded. The only outstanding feature is the awarding of the general contract for the new building of the Cincinnati *Enquirer* to the George A. Fuller Co., which will probably let the fabricating work, totaling over 3000 tons, within the next few weeks. Decision on 900 tons for the new boiler shop of the Chesapeake & Ohio Railroad at Huntington, W. Va., is still pending. Fabricators are encouraged at the number of awards calling for 25 to 75 tons.

Reinforcing Bars.—The Danis-Hunt Co., Dayton, Ohio, has been awarded the general contract for construction of the new warehouse of the Big Four Railroad at Dayton, Ohio. The bar tonnage that this building will require is as yet unknown. Activities locally have tapered off, but several important projects are expected to develop within the next 10 days. A moderate number of small lettings have injected some action into an otherwise sluggish market. Prices are displaying slightly more strength. New billet bars are bringing 2c. to 2.10c., mill, while rail steel bars may be purchased at 1.90c. to 1.95c., mill.

Wire Goods.—Sales have increased somewhat, although weakness is still evident in the local market. Jobber buying has opened up to a limited extent. The most encouraging sign is the disposition on the part of independent mills to ask a better price for their goods. Although cutting of prices is indulged in in certain instances, the pressure being exerted to book business at extremely low figures is not as keen as it was a few weeks ago. Eastern mills report that they have been selling a fair volume of common wire nails at 2.65c., Cleveland. Orders have been booked on a lower price basis, but these have not been numerous. Plain wire is quoted at 2.50c., Cleveland, with some sellers shading this price to obtain business. Purchases by consumers are limited to orders covering only immediate requirements. Jobbers are unlikely to buy extensively until September.

Sheets.—The volume of orders booked by local sellers continues to exceed mill shipments. Sales during the first week of August were approximately the same as in the previous month. Consumer demand is steady and persistent, but is restricted to orders for delivery within six weeks. Hesitancy is displayed by buyers in anticipating future needs. They are not yet assured that prices are gradually stiffening and that they will be unable to purchase sheets at less than present quotations. Interest which has centered upon the anticipated rise in the price of galvanized sheets has been dispelled because of the ability of consumers to secure all of the tonnage they desire at 4.20c., Pittsburgh, the old price. Several sellers contend, however, that 4.30c., Pittsburgh, will be gradually established in the next few weeks. Bookings of black sheets have been fair and the price of 3.15c., Pittsburgh, remains undisturbed. Consistently good sales of blue annealed sheets have been made at 2.30c., Pittsburgh. Auto sheets, with a poor territory on which to draw for business, have commanded little attention. The price is firm at 4.25c., Pittsburgh.

Warehouse Business.—August sales have been fairly good and parallel those made in July. Demand for structural steel has been the most potent factor in holding the volume of business up above normal for this time of the year. A local jobber states that his sales of cold-rolled steel in the past month have been greater than in any previous month since February. Conflicting statements have been made regarding sheets. Some jobbers are well satisfied with their bookings, while others are disappointed. Orders for nails have increased, but the price remains unchanged. Sales of reinforcing bars have been fair.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 9 annealed wire; $3.00 per 100 lb.; common wire nails, $2.95 per keg base; cement coated nails, $2.40 per keg; chain, $7.55 per 100 lb. base; large round head rivets, $3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft. lap welded steel tubes, 2-in., $18; 4-in., $38; seamless, 2-in., $19; 4-in., $39.

Coke.—Sales have approximated 9000 tons in the past week. Foundry coke constituted the major portion of this business. Shipments of foundry grades have about paralleled these in July, but domestic coke shipments are showing a constant improvement. Demand for furnace coke is limited, due to the restricted operation of furnaces in this territory. The Portsmouth By-Product Coke Co., Portsmouth, Ohio, has increased its production to capacity. A sale of 1250 tons of foundry coke and another of 1500 tons of domestic coke have been made by a local dealer. It is reported that shipments of by-product coke to Michigan territory have been heavy. Prices are steady in view of the strength of the market although some shading of by-product foundry quotations is effected in highly competitive districts.

Old Material.—Another advance of 50c. in heavy melting steel reflects the growth in confidence of local dealers that business will improve shortly. An increase of 50c. in a number of other items also indicates that mills are expected to come into the market within a few weeks. Present activities are chiefly confined to purchases and trading among dealers, although mills are calling for small lots. Most consumers are well covered for their immediate requirements. The Chesapeake & Ohio, Norfolk & Western and Cincinnati Southern have lists closing this week. A considerable portion of this tonnage is expected to be taken by dealers in this territory.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$15.00 to $15.50
Scrap rails for melting	14.50 to 15.00
Short rails	18.50 to 19.00
Relaying rails	28.00 to 28.50
Rails for rolling	15.50 to 16.00
Old car wheels	14.00 to 14.50
No. 1 locomotive tires	17.00 to 17.50
Railroad malleable	16.00 to 16.50
Agricultural malleable	15.50 to 16.00
Loose sheet clippings	10.50 to 11.00
Champion bundled sheets	12.00 to 12.50
Per Net Ton	
Cast iron borings	9.00 to 9.50
Machine shop turnings	8.00 to 8.50
No. 1 machine cast	19.00 to 19.50
No. 1 railroad cast	15.50 to 16.00
Iron axles	23.00 to 23.50
No. 1 railroad wrought	12.00 to 12.50
Pipes and flues	9.00 to 10.00
No. 1 busheling	11.00 to 11.50
Mixed busheling	9.50 to 10.00
Burnt cast	10.00 to 10.50
Stove plate	11.00 to 11.50
Brake shoes	11.00 to 11.50

Birmingham

Pig Iron in Steady Demand from Pipe Makers—Plates and Sheets Active

BIRMINGHAM, Aug. 10.—Shipment and melt of iron in the Southern territory have been aggregating more than the make for the past ten days and inquiries still being received indicate warrant for steady production and that some surplus stock will be worked off. A Southern furnace interest is shipping basic iron into the Cincinnati territory, to a steel plant at Newport, Ky. Small lots of iron are moving into the Middle West, through the Ohio River gateway, for melters who use some Southern iron in daily operations. Impetus in the melt in the home territory was caused principally by new business for soil pipe and fittings manufacturers and this is still on. The cast iron pressure pipe makers will continue activity indefinitely and the statement is reiterated that the year will be as good as last, so far as production goes. Further firmness is noted in quotations for cast iron pipe, gas and water pipe, $40 per ton still being given as the base on 6-in and over. These interests will require more pig iron early next year; additions are being built at two plants. The Woodward Iron Co. will blow in its furnace, which has been under repairing the last four weeks, by Aug. 15. This company now has two furnaces on foundry and one on basic iron. Two other furnaces are to be blown out for repairing this month, one now on basic iron. The open-hearth furnaces in operation in this district require a large amount of basic, but both the Gulf States, independent, and Tennessee Coal, Iron & Railroad Co. keep good stocks ahead. Quotations for pig iron are still at $18.50 per ton, No. 2 foundry, and for fourth quarter 50 cents additional is being asked. A higher price is being sounded out for the last of the month, 50c above the above quotations.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$18.00 to $19.00
No. 1 foundry, 2.25 to 2.75 sil.	19.00 to 19.50
Basic	18.50 to 19.50
Charcoal, warm blast	30.00 to 32.00

Finished Steel.—Production and shipment of steel from this district show a little improvement, but quotations are unchanged. Plate mills will have the demand of a new plant just starting here, a tank and tank car industry of the Reeves Brothers, Inc. The sheet mill of the Tennessee company will not be ready for production for another month. Steel fabricating plants report many orders in hand and still in sight. A little export business is now looming up. Soft bars are quoted at 2.15c. to 2.25c. Birmingham.

Cast Iron Pipe.—Cast iron pipe shops of the district, with few exceptions, have been producing steadily recently, the soil pipe makers feeling an improvement in their trade and operating one, two or three days more per week, to deliver promptly. Pressure pipe production has been maintained and no stock is being carried on hand. American Cast Iron Pipe Co. has in construction a new centrifugal pipe shop with daily capacity of 500 tons and will rearrange its cupolas and iron yards. The new shop will be completed by Feb. 1. Quotations are firm on a $40 per ton base, 6-in. and over pipe.

Coke.—Conditions in the Southern coke market of the past several weeks continues, the independent producers finding a market for their product, quotations ranging from $4.50 to $5. Coal and coke producers hope that cessation of operations in the North next month may bring about an increased demand. Furnace and steel mills require the same amount of coke as heretofore. Woodward Iron Co.'s 40 repaired ovens at its by-product plant will be completed next month.

Old Material.—While quotations for old material show no change, the market conditions are improved; there is more or less selling, but practically all business is for early delivery. Stocks on yards are large and products are being prepared for any and all specifications.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	16.00 to 17.00
Iron axles	16.00 to 17.00
Steel rails	13.00 to 14.00
No. 1 cast	16.00 to 16.50
Tramcar wheels	16.50 to 17.00
Car wheels	15.00 to 16.00
Stove plate	13.00 to 13.50
Machine shop turnings	7.00 to 8.00
Cast iron borings	7.00 to 8.00
Rails for rolling	16.50 to 17.00

Boston

Falling Off in Pig Iron Sales—Scrap Market Dull

BOSTON, Aug. 11.—Pig iron sales in this territory have dropped off somewhat, yet business is running well ahead of that for the corresponding period last month. Sales the past week include lots of 1000 tons and larger, but for the most part average much smaller, with the aggregate about half that for the previous week. Buffalo district continues the most aggressive of domestic furnaces for business in New England, but Dutch iron is a growing factor. Buffalo iron is available at $18.50 to $19, furnace base, or $23.41 to $23.91 delivered, and recent transactions in silicon 2.75 to 3.25 have been made as low as $23.41 delivered. Western Pennsylvania iron, heretofore $18.25, furnace base, or $24.16 delivered, has been raised to $24.66 delivered, equalizing the price on No. 2X, while No. 1X has been advanced to $24.91 delivered, up 50c. a ton. Dutch iron is freely offered at delivered seaboard prices, duty paid, $3.50 to $4 under the delivered Buffalo price. New inquiries call for 3000 to 4000 tons, and include one for 1000 tons of No. 2X from a Rhode Island foundry, first quarter 1926 delivery, the first out-and-out 1926 delivery asked for in this market. A jobbing foundry wants 1200 to 2500 tons No. 1X, part last quarter and part first quarter delivery.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$23.65 to $24.15
East. Penn., sil. 2.25 to 2.75	24.15 to 24.65
Buffalo, sil. 1.75 to 2.75	23.41 to 23.91
Buffalo, sil. 2.25 to 2.75	23.91 to 24.41
Virginia, sil. 1.75 to 2.25	28.42 to 29.92
Virginia, sil. 2.25 to 2.75	28.92 to 30.42
Alabama, sil. 1.75 to 2.25	28.10 to 28.60
Alabama, sil. 2.25 to 2.75	28.60 to 29.11

Shapes and Plates.—Prices on plates are easier, notwithstanding a more active demand. Offerings are now freely made at $2.16½ per 100 lb. delivered, contrasted with $2.21½ heretofore. The amount of plate business placed in New England last month ran well ahead of June, and August to date is holding up to the July level. Structural shapes are holding at $2.36½ per 100 lb. delivered, and the same price is quoted on bars. Foreign structural steel, in a small way, is becoming quite a market factor. It sells at $2.36½ per 100 lb. f.o.b. dock here, duty paid, or equivalent to mill shipments here on a basis of 2c., Pittsburgh.

Coke.—Specifications against last half contracts for by-product foundry coke continue to increase in number. In some cases foundries are ordering in the balance of coke due on contracts over the remainder of 1925, and practically all foundries are anticipating fuel needs largely because of the turn of affairs in negotiations between coal operators and miners. To a considerable extent, however, increased melts account for increased coke business. Brokers' requisitions for fuel are running about 50 per cent larger than last month. Quite a number of New England foundries heretofore on a four days per week schedule are operating five and one-half and six days a week. Both the New England Coal & Coke Co. and the Providence Gas Co. quote by-product foundry coke at $11.50 a ton delivered within New England.

Old Material.—While the demand for pig iron has been running strong, that for old material has tapered off. Today the old material business is quieter than it has been for a month. Local mills continue to take limited amounts of heavy melting steel at around $12 a ton on cars shipping point, and Pittsburgh territory plants at about $1 a ton more. Owners of this and other old materials, however, are holding for higher prices, which in a large measure accounts for the quietness of the general market. Local scrap interests are of the opinion that consumption of machinery cast is increasing in New England, but most foundries are supplying their wants from nearby yards.

The following prices are for gross ton lots delivered consuming points:

Textile cast	$20.00 to $21.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	15.50 to 16.50
Stove plates	13.00 to 13.50
Railroad malleable	19.00 to 19.50

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$12.50 to $13.00
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long)	11.00 to 11.50
Machine shop turnings	8.50 to 9.00
Cast iron borings, chemical	11.00 to 11.50
Cast iron borings, rolling mill	8.50 to 8.75
Blast furnace borings and turnings	7.50 to 8.00
Forged scrap	10.00 to 10.50
Bundled skeleton, long	9.50 to 10.00
Forged flashings	9.50 to 10.00
Bundled cotton ties, long	8.50 to 9.00
Bundled cotton ties, short	10.00 to 10.50
Shaftings	19.00 to 19.50
Street car axles	18.00 to 18.50
Rails for rerolling	12.50 to 13.00
Scrap rails	12.50 to 13.00

Buffalo

Foundry Iron Higher — Finished Steel Promising — Steel Scrap Scarce

BUFFALO, Aug. 11.—Inquiry for the week covered approximately 7000 tons, including one lot of 2000 tons of foundry iron desired by a New England consumer. Another lot was for 600 tons of foundry, and there were several 300 and 400-ton lots. The largest sales by one maker totaled 3500 tons. A little better sentiment is noticable and it is probable that there has been a little firming of the price. Certain furnaces are maintaining $19 base price, but in place of $18.25 the minimum noted now is $18.50.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$18.50 to $19.00
No. 2X foundry, sil. 2.25 to 2.75	18.50 to 19.00
No. 1 foundry, sil. 2.75 to 3.25	19.00 to 19.50
Malleable, sil. up to 2.25	18.50
Basic	18.50
Lake Superior charcoal	29.28

Finished Iron and Steel.—An increase in inquiry and orders over the past two weeks is noted. The bar situation is firm at 2.265c., Buffalo, with no recessions noted in billets or sheet bars, which are firm at the Buffalo equivalent of $35, Pittsburgh. Sheets, tin plate and nuts and bolts are also firmly held. Some sloughing off has occurred in shapes which have been sold as low as 2.165c., Buffalo, but are quotable at 2.165c. to 2.265c. The lower prices have been more prevalent east of Buffalo. Inquiry for shapes has been fairly good. In general, there has been little forward buying or disposition to lay in stocks, but fall buying looks promising.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 3.80c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.45c.; cold rolled shapes, 4.40c.; cold rolled rounds, 3.95c.; wire nails, 4c.; black wire, 4.05c.

Old Material.—Of the railroad offerings very little material came here. Most of it went to Pittsburgh and Valley points at better than $19. The prices secured this month are higher than at any time this year. No buying is occurring in this district now, though one mill is expected in the market almost any time. The market is strong at $17.50 to $18, and it is probable that a tonnage would command $19. There is a real shortage of steel scrap. Demand for machine shop turnings and shoveling turnings is very strong, with Pittsburgh offering $15.50 to $16, and a real shortage of both. Cast scrap is not very active; a few small sales have taken place. The activity in outside market will shortly be reflected here, it is believed, and will constitute the earliest opening up of the market in some time. An occasional carload of specialties is being sold, $20 being obtained for short rails, angle bars, knuckles and couplers, etc.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	$17.50 to $18.00
Low phosphorus	19.00 to 20.00
No. 1 railroad wrought	16.00 to 16.50
Car wheels	16.50 to 17.50
Machine shop turnings	12.50 to 13.00
Cast iron borings	12.50 to 13.00
No. 1 busheling	15.00 to 15.50
Stove plate	15.25
Grate bars	14.25 to 14.75
Hand bundled sheets	14.00 to 14.50
Hydraulic compressed	16.00 to 16.50
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	18.00 to 18.50
No. 1 cast scrap	17.00 to 17.50
Iron axles	26.00 to 27.00
Steel axles	17.00 to 17.50

St. Louis

Pig Iron Shows More Life—Scrap Quiet But Firm

ST. LOUIS, Aug. 11.—Pig iron is developing more life, with steel makers showing interest in supplies for the first time in many weeks. Prices are firmer generally, with Chicago makers asking 50c. a ton higher than ten days ago. The local producer's quotations remain unchanged at $21.50 to $22, f.o.b. Granite City. Inquiries are less plentiful and some difficulty is being experienced in getting prompt delivery on certain analyses. The melt has increased slightly since the first of the month. Implement makers, engine builders and other specialty makers continue busy, and the job plants report prospects somewhat improved. The largest sale reported was 3000 tons of basic to a nearby Illinois user for delivery over the next 90 days. A local wheel maker took 500 tons and 1000 tons was engaged by an Alton, Ill., specialty maker. Other sales brought the total for the week to about 8000 tons.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City.

Northern fdy., sil. 1.75 to 2.25	$22.66 to $23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	22.66 to 23.16
Alabama fdy., sil. 1.75 to 2.25 (rail)	22.67 to 24.17
Tennessee fdy., sil. 1.75 to 2.25	22.67
Granite City iron, sil. 1.75 to 2.25	21.31 to 21.81

Finished Iron and Steel.—With numerous construction enterprises pending, and July building permits holding up to recent levels, the outlook for structural materials continues roseate, but recent lettings have been small. The same is true in the concrete bar market, where there is a steady stream of small orders, but no notable single sales. It is expected that the contract for the new St. Louis reservoir, requiring 2400 tons of reinforcing bars, will be closed this month. The demand for iron and steel goods from store is brisk, with farm implement makers, the cement interests and oil fields accounting for liberal tonnages. Railroad shops have increased their activities, and are purchasing goodly quantities of repair materials.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plants, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.50c.; galvanized sheets, No. 28, 5.50c.; black corrugated sheets, 4.65c.; galvanized, 5.65c.; cold-rolled rounds, shafting and screw stock, 3.70c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, $\frac{7}{8}$ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, $3.50; hexagons, blank or tapped, $4 off list.

Coke.—Purchasing of foundry coke continues active, but sales are largely in small lots for prompt delivery. Some further contracting by Western and Southwestern melters was reported by local by-product ovens, and shipments to that general region are large. Producers report shipments slightly in excess of current make. Fair tonnages are being taken by the smelters in the Tri-state lead and zinc district. Prices remain unchanged.

Old Material.—While the industries are buying sparingly, and only for quick shipment, the scrap iron and steel market shows decided strength. Dealers are bidding sharply for railroad offerings. Prices realized by the carriers have been high, and higher than the mills and foundries are bidding. The strongest items of the market are cast and rolling mill and malleable grades, all of which materials are in good demand from outside points, especially in the Chicago and Indiana districts. Rails are scarce and wanted, but steel, both heavy melting and specialties, is relatively quiet. Railroad lists included the following: Wabash, 2500 tons; Pullman Co., 9 cars; Baltimore & Ohio, 19,000 tons; Frisco, 800 tons; Missouri, Kansas & Texas, 1600 tons and Chicago & Eastern Illinois, 800 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton	
Iron rails	$15.00 to	$15.50
Rails for rolling	18.00 to	18.50
Steel rails less than 3 ft.	17.50 to	18.00
Relaying rails, 60 lb. and under	24.00 to	25.00
Relaying rails, 70 lb. and over	30.00 to	31.00
Cast iron car wheels	17.50 to	18.00
Heavy melting steel	14.75 to	15.25
Heavy shoveling steel	14.75 to	15.25
Frogs, switches and guards cut apart	17.00 to	17.50
Railroad springs	18.50 to	19.00
Heavy axles and tire turnings	11.50 to	12.00
No. 1 locomotive tires	17.00 to	17.50
Per Net Ton		
Steel angle bars	15.00 to	15.50
Steel car axles	17.50 to	18.00
Iron car axles	25.00 to	25.50
Wrought iron bars and transoms	18.75 to	19.25
No. 1 railroad wrought	13.25 to	13.75
No. 2 railroad wrought	13.25 to	13.75
Cast iron borings	10.00 to	10.50
No. 1 busheling	11.50 to	12.00
No. 1 railroad cast	15.50 to	16.00
No. 1 machinery cast	17.00 to	17.50
Railroad malleable	14.50 to	15.00
Machine shop turnings	7.25 to	7.75
Champion bundled sheets	8.50 to	9.00

Scrap Advances in Detroit District

DETROIT, Aug. 11.—With dealers having sufficient orders on their books to cover the tonnage recently bought from producers for August delivery, the market on old material has registered some advance during the past week, notably on heavy melting and shoveling steel, borings and short turnings, hydraulic compressed long turnings and flashings. Other prices are as quoted a week ago.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$14.00 to	$14.50
Borings and short turnings	11.25 to	11.75
Long turnings	10.75 to	11.75
No. 1 machinery cast	15.00 to	16.00
Automobile cast	21.00 to	22.00
Hydraulic compressed	13.25 to	13.75
Stove plate	12.50 to	13.00
No. 1 busheling	12.50 to	13.00
Sheet clippings	8.75 to	9.25
Flashings	11.75 to	12.25

The New England Power Co., Worcester, Mass., which distributes over 700,000,000 kilowatt hours of current to New England industries and public utilities, chiefly generated by hydraulic stations on the Connecticut and Deerfield rivers, will establish another power station on the Deerfield just below its great Davis Bridge project in Southern Vermont. Generating equipment will add 10,000 hp., estimated to give 25,000,000 kw. hr. annually.

Philadelphia

Pig Iron Slightly Firmer—Scrap Market Strong and Advancing

PHILADELPHIA, Aug. 11.—Conclusions to be drawn from this week's survey of the iron and steel trade are, first, that steel buying has not reached the volume so far this month that was expected; second, that pig iron is firmer and slightly higher in price after months of weakness, and, third, the advance in scrap prices continues despite the moderate volume of buying and absence of signs pointing to any immediate broadening of steel plant operations. From developments, or the lack of them, it is difficult to form trustworthy opinions as to the future. The market this month is drifting, but it may truthfully be said that most of the signs are good, except perhaps the continued weakness of steel prices. Advances in scrap are somewhat of a puzzle to steel plant buyers in view of the fact that operations are substantially no better than two months ago. Yet some brokers have declined to do business in heavy melting steel at $17 and $17.50 and their idea of prices at which it would be "safe" to make sales is $18 to $18.50.

Pig Iron.—Whether pig iron buyers are feeling any concern over the prospective anthracite coal strike, now almost a certainty, is hard to say, but it is noteworthy that inquiry for iron has noticeably increased within the past week, or since the news of a definite break in the coal strike negotiations was published. Some of the inquiry is for August-September delivery, but a good deal is for fourth quarter coverage. A good deal of business has been done within the last week, principally by one or two sellers. Sales of foundry iron have not been less than 20,000 to 25,000 tons, of which a good share brought $20.50 for No. 2 plain and $21 for No. 2X, f.o.b. furnace. For some weeks several of the furnaces have been quoting these figures, but there have been one or two sellers willing to take business on a $20 base. Now it appears that $20 has just about disappeared. The minimum reported on the past week's sales is $20.25 for No. 2 plain and $20.75 for No. 2X. On some transactions furnaces have received $20.75 for No. 2 plain. Unless there should be an anthracite coal strike the market would scarcely respond to any sharp advances as foreign iron is still being offered at $20 to $20.50, c.i.f. Philadelphia, duty paid. On recent substantial sales of low phosphorus iron low prices have been made due to keen competition. A New York State furnace making copper free iron has quoted prices as low as $21, furnace, while $22.50, furnace, has been done on copper bearing low phosphorus. A furnace near Philadelphia which is running largely on foreign ore has just purchased 7000 tons of North African low phosphorus ore.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rate varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.01 to	$21.63
East. Pa. 2X, 2.25 to 2.75 sil.	21.51 to	22.13
East. Pa. No. 1X	21.76 to	22.63
Virginia No. 2 plain, 1.75 to 2.25 sil.	28.67 to	29.17
Virginia No. 2X, 2.25 to 2.75 sil.	29.17 to	29.67
Basic delivery eastern Pa.	20.50 to	21.50
Gray forge	21.00 to	22.00
Malleable	22.00 to	22.50
Standard low phos. (f.o.b. furnace)	21.00 to	22.00
Copper bearing low phos. (f.o.b. furnace)	22.50 to	23.50

Ferroalloys.—Ferromanganese remains at $115, furnace or seaboard, for domestic and foreign alloy.

Billets.—The nominal quotations on billets are $35 for rerolling quality and $40 for forging quality, Pittsburgh base, but concessions would be obtainable on a desirable specification.

Plates.—The drift of the plate market is toward 1.80c., Pittsburgh, on any order for a carload or more. This price was at first reserved by some mills for very special orders, but now is becoming general on the smaller lots, and some buyers are insisting that they

can do better than 1.80c., but there is little to confirm this at present. The volume of business shows no gains, but is holding its own in comparison with July.

Structural Material.—The building program for the Sesqui-Centennial Exposition to be held in Philadelphia in 1926 will include six large buildings, totalling about 21,000 tons of steel. Bids on building No. 1 were received last Friday, but as only three tenders had been filed the date of opening was postponed until Friday of this week. The steel involved in the first building is 3500 tons and the others will be of like size. The Pennsylvania Railroad is getting bids on an office building at Market and Thirty-second Streets, requiring 3500 tons of steel, which is the first unit of the new terminal of the road at West Philadelphia. No improvement in the general demand for shapes is noted, and there is a dearth of fabricated work. This has created a more competitive market for building work, with somewhat lower prices. Shape prices present an irregular market, the range being from 1.75c. to 1.90c., Pittsburgh. The higher price prevails on the ordinary run of business, but some of the larger jobs are going at low figures for the plain material.

Bars.—Most of the sales of steel bars are at 2c., Pittsburgh, but there is more talk of price weakness, and one company is reported to have made sales in the East at 1.90c., Pittsburgh. This seller is one of the larger producers and its action has created considerable comment in view of the strength which steel bars have shown for several months. There is also a little weakness in bar iron, with some offers at 1.85c., Pittsburgh, which not all mills are meeting.

Sheets.—Efforts of sheet manufacturers to boost galvanized sheets to 4.30c. and black sheets to 3.20c., Pittsburgh, have not been wholly successful, most of the past week's sales having been at 4.20c. for galvanized and at 3.10c. to 3.15c. for black. Reports of low quotations on blue annealed sheets are not generally credited here, although it is known that several Ohio mills are anxious sellers in view of the holding up of shipments by some of the automobile manufacturers. Sales have been made within the week at 2.25c. and 2.30c., Pittsburgh, and reports of 2.20c. quotations are not confirmed.

Warehouse Business.—Further price cutting on steel out of stock is reported, sales having been made of certain items at 5c. per 100 lb. below the prices given below, which are for local delivery:

> Soft steel bars and small shapes, 2.90c.; iron bars (except bands), 2.90c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 2.90c.; tank steel plates, ⅜ in., 3.05c. to 3.10c.; blue annealed steel sheets, No. 10 gage, 3.35c.; black sheets, No. 28 gage, 4.35c.; galvanized sheets, No. 28 gage, 5.45c.; square, twisted and deformed steel bars, 2.85c.; structural shapes, 2.80c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4c.; squares and flats, cold-rolled steel, 4.50c.; steel hoops, 4c. base; steel bands, No. 12 gage to ⅞ in., inclusive, 3.75c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Coke.—Threats of an anthracite coal strike have had only a moderate effect on coke up to this time. Foundry coke is now generally quoted at $4, Connellsville, which is a 25c. advance, but there has been no change in furnace coke, still available at $2.90 to $3.25, depending upon the quality. Coke operators have revived talk of a wage clause in all coke contracts, beginning with Jan. 1, 1926.

Imports.—Pig iron receipts from abroad totaled 4303 tons in the week ended Saturday, this being made up of 3150 tons from England and 1153 tons from India. Seven hundred tons of structural steel from Belgium and 24 tons of hoops from England were the only steel imports. Iron ore receipts were: 7359 tons from Sweden and 995 tons from Egypt, and of chrome ore there was 652 tons from British South Africa.

Old Material.—The strong and advancing scrap market is so frankly based on expectations of larger steel plant operations that the failure of steel production to increase this month may have an adverse effect, but it has not been shown yet. Steel company buyers are unable to understand the high prices asked for melting steel in view of the moderate volume of scrap buying and the fact that operations are no better than in June, when heavy melting steel was obtainable at $15 to $15.50. A steel company wanting to buy several thousand tons could not find a broker willing to take an order a few days ago at $17, and even $17.50 failed to locate a willing seller. The idea of brokers is $18 to $18.50 for steel scrap; they profess to be afraid to take a chance on a sale at anything less because of the difficulty they are having in persuading yard dealers to sell at prevailing prices. The minimum now being paid for steel scrap is $16.50, which a broker is offering for shipment to Bethlehem, Pa. Other grades are strong, but the advances have been moderate. The Pennsylvania Railroad list went at high prices last week, steel scrap bringing $17.60 for delivery in the East and nearly all grades were sold at prices above the general market.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$16.50 to $17.50
Scrap rails	16.50 to 17.50
Steel rails for rolling	18.00 to 18.50
No. 1 low phos. heavy 0.04 and under	21.50 to 22.00
Couplers and knuckles	21.00 to 21.50
Rolled steel wheels	21.00 to 21.50
Cast iron car wheels	18.50 to 19.00
No. 1 railroad wrought	17.50 to 18.50
No. 1 yard wrought	17.00 to 17.50
No. 1 forge fire	15.00 to 15.50
Bundled sheets (for steel works)	14.00
Mixed borings and turnings (for blast furnace use)	12.50 to 13.50
Machine shop turnings (for steel works use)	14.00
Machine shop turnings (for rolling mill use)	14.00 to 14.50
Heavy axle turnings (or equivalent)	15.50 to 16.00
Cast borings (for steel works and rolling mill)	14.00 to 14.50
Cast borings (for chemical plant)	16.00 to 16.50
No. 1 cast	18.00 to 18.50
Heavy breakable cast (for steel plants)	17.00 to 17.50
Railroad grate bars	14.50 to 15.00
Stove plate (for steel plant use)	14.50 to 15.00
Wrought iron and soft steel pipes and tubes (new specifications)	16.50
Shafting	23.50 to 24.50
Steel axles	23.50 to 24.50

Cleveland

Activity in Foundry Iron—Scrap Higher on Dealer Trading

CLEVELAND, Aug. 11.—Improvement in the volume of buying by agricultural implement makers in northern Ohio is reflected in orders to the mills as well as better specifications. To many steel sales offices, this was an important feature of the week. It has been several years since implement makers have been in the market for supplies with as much assurance as they appear to have today. This early they declare they are feeling the stimulus of better crop conditions and the consequent demand from the farmer for implements. Again, the automotive interests have continued steady buyers in small lots of various mill products and so far no let-down in production has been translated into less demand for steel. Indeed, well informed steel salesmen take the position that recent price cuts in the automotive industry are most likely to be reflected in sustained demand later into the autumn. Shipments of Lake Superior iron ore were the heaviest in July of any month so far this year and were 17 per cent over July a year ago. The scrap market is taking on more activity but the mills are not so active buyers as are dealers who have been short of the market and are busy covering. Prices of plates, shapes and steel bars appear to be holding steadily at recently published figures.

> Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 3.90c.; No. 28 galvanized sheets, 5.10c.; No. 10 blue annealed sheets, 3.10c.; cold-rolled rounds and hexagons, 3.80c.; flats and squares, 4.30c.; hoops and bands, 3.85c.; No. 9 annealed wire, $3 per 100 lb.; No. 9 galvanized wire, $3.45 per 100 lb.; common wire nails, $3 base per 100 lb.

Pig Iron.—The most interesting feature of the northern Ohio market continues to be the heavy shipments to all sorts of consumers. Judging from the insistence of foundry customers, the foundry industry stands in need of pig iron. One northern Ohio producer in the past week sold 8000 tons of foundry grades, another, 10,000 tons, and both have shipped more iron in July than they produced although each has several stacks. The Cleveland quotation stands at $20, delivered Cleveland; Todelo and Detroit at $19, furnace, and Valley competition still holds at $18.50 for No. 2 foundry. The second important feature of the local market has been the very large volume of inquiry that still is coming out. While Eastern consumers have been inquiring more especially at Buffalo, due to the anthracite coal strike threat, yet the Middle West also has produced a fair volume of new inquiry. This is largely confined to foundry and malleable grades. It applies to deliveries in the fourth quarter, but considerable also for the first half of next year. But local furnace interests are not especially interested in quoting so far ahead as into 1926, some of them refusing to name a price even to old customers on this delivery. The lighting of a Milwaukee stack on low phosphorus iron has had the effect of making competition on this grade a bit keener in the Central West where steel foundries have not been especially busy but now are beginning to show more market interest.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 from Birmingham:

Basic, Valley furnace	$18.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	20.00
Southern fdy., sil. 1.75 to 2.25	$23.51 to 26.01
Malleable	20.00
Ohio silvery, 8 per cent	29.02
Standard low phos., Valley furnace	27.50 to 28.00

Sheets.—A fair volume of trade is coming to mills and this week the Niles, Ohio, mills of the Republic Iron & Steel Co. are on in full, all 16 mills. Following the lead of one Eastern mill in advancing its quotation on galvanized sheets to 4.30c., Pittsburgh, an important Valley mill has followed with a like quotation for fourth quarter shipment out of the country. A sale of a couple of hundred tons of blue annealed sheets has just been made here at 2.30c., Pittsburgh. The automotive builders are taking a fair run of sheets and the same thing appears to be true of strip steel. The most general quotation of black sheets is 3.15c., Pittsburgh, especially in Cleveland.

Semi-Finished Steel.—Sales of some small tonnages of sheet bars and slabs continue, but in general the semi-finished market remains quiet. While Valley mills are quoting $35, Youngstown, on these products, one Cleveland mill has been willing to take on some light tonnage at $35, Cleveland, especially sheet bars. Regular customers appear to hold out less hope of concessions than several weeks ago and are paying the published price for billets, slabs and sheet bars.

Reinforcing Bars.—Biggest pending contract for reinforcing bars here includes 500 tons for Fisher Ohio Body Co., at Cleveland, opening today. The proposed Greely Terminal here is expected to require a good tonnage of bars. Considerable numbers of small contracts are being placed in increasing number, making an unusually active market. New steel bars bring 1.90c. to 2c. but hard bars can be had at 1.80c. to 1.90c.

Old Material.—While the scrap trade appears to have taken on more life of late, especially for heavy melting steel, the activity is more largely among dealers than among mills. In fact, the mills seem a bit more particular about grades of melting steel now than formerly. Some dealers find the same thing true of borings and turnings. Heavy melting steel has advanced about 50 cents a ton in the Valleys to $18.50 to $19; and it also has risen about 25c. in Cleveland to $17 to $17.50. Compressed sheets have gone up 75c. on some good buying, and axle turnings are higher. But the cast grades have not changed in price lately.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$17.00 to $17.50
Rails for rolling	17.00 to 17.50
Rails under 3 ft	19.00 to 19.50
Low phosphorus melting	18.00 to 18.25
Cast iron borings	14.25 to 14.75
Machine shop turnings	14.00 to 14.25
Mixed borings and short turnings	14.00 to 14.25
Compressed sheet steel	15.00 to 15.50
Railroad wrought	13.50 to 14.00
Railroad malleable	18.50 to 19.00
Light bundled sheet stampings	12.25 to 12.75
Steel axle turnings	15.50 to 16.00
No. 1 cast	18.00 to 18.50
No. 1 busheling	14.25 to 14.75
Drop forge flashings	13.00 to 13.50
Railroad grate bars	13.50 to 13.75
Stove plate	13.50 to 13.75
Pipes and flues	11.00 to 11.25

BETHLEHEM EXPANSION

Will Have Warehouses at Four Points on Pacific Coast

SAN FRANCISCO, Aug. 11.—An expansion of the steel interests of the Bethlehem Steel Corporation on the Pacific Coast, involving the expenditure of several hundred thousand dollars in new warehouses and increased managerial forces, has been announced by the San Francisco office of the company.

Joseph J. Tynan, formerly general manager of the Union Iron Works, San Francisco, previous to its purchase by the Bethlehem interests, and since then in charge of the Bethlehem Shipbuilding Corporation on the Pacific Coast, has been appointed vice-president of the Bethlehem Steel Corporation and manager of all of its interests, including both shipbuilding and steel activities on the Pacific Coast. E. E. Goodwillie, formerly manager of the Chicago district of the Bethlehem Steel Co., has been appointed as Mr. Tynan's assistant in charge of steel sales on the Pacific Coast.

The company's expansion program, according to Mr. Tynan, will include the construction of large steel products warehouses in San Francisco, Los Angeles, Seattle and Portland, where the company already has offices, docks and shipbuilding plants. Managerial and office forces in each of these cities are expected to be enlarged to take care of the increased steel business.

Arnold Foster, who has been assistant treasurer of the corporation in the East, has been named assistant secretary-treasurer and will also be transferred to the San Francisco office. Messrs. Tynan and Goodwillie in their new offices will succeed Leigh B. Morris and H. B. Green, who have severed their relations with the company.

Pig Iron Sold at Reduced Prices by Valley Furnaces

YOUNGSTOWN, Aug. 11.—On two sales of No. 2 foundry iron within the last ten days, on which district merchant producers quoted, the price was $18.25, Valley furnace, or 25c. per ton below the market. Each order called for 1000 tons. Subject to approval, the American Seeding Machine Co. has purchased for delivery to its plant at Springfield, Ohio, 500 tons of No. 2X foundry, at $18.50, for delivery over the remainder of the year. This price is 50c. per ton under the general market.

The weakness in the iron market, in the face of strength exhibited by scrap, semi-finished and finished steel, is attributed to ample iron stocks and financial necessities of sellers. One merchant interest with a stack in the Mahoning Valley had 58,224 tons of iron piled in its yards as of Aug. 1 and had sold in a month but 450 tons. With scrap higher than pig iron, melters are increasing the iron content in the mix and consequently decreasing the amount of scrap used.

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb.....1.90c.
F.o.b. Chicago, base, per lb.....2.10c.

Structural Shapes

F.o.b. Pittsburgh mill, base, per lb.....2c.
F.o.b. Chicago, base, per lb.....2.10c.

Iron and Steel Bars

Soft steel bars, f.o.b. P'gh mills, base, per lb.....2c.
Soft steel bars f.o.b. Chicago, base, per lb.....2.10c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb.....2c.
Rail steel bars, f.o.b. Chicago and f.o.b. Chicago district mills, base, per lb.....2.00c.
Common iron bars, f.o.b. Chicago, base, per lb..1.90c. to 2.00c.
Refined iron bars, f.o.b. P'gh mills, base, per lb.....3.00c.
Common iron bars, eastern Pa. mill, base, per lb.....2.10c.

Hot-Rolled Flats

Hoops, base (6 in. and narrower), per lb., Pittsburgh..2.40c.
Bands, base (6 in. and narrower), per lb., Pittsburgh..2.40c.
Strips, 6 in. and narrower, base, per lb., Pittsburgh.....2.40c.
Strips, 6 in. and wider, base, per lb., Pittsburgh.....2.20c.
Strips, 6 in. and narrower, Chicago.....2.40c. to 2.50c.
Strips, wider than 6 in., Chicago.....2.30c. to 2.40c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'hg mills, base, per lb., 2.50c.
Screw stock and shafting, f.o.b. Chicago, base, per lb..2.50c.
Screw stock, base, per lb., Gleveland.....2.65c.
Shafting, ground, f.o.b. mill, base, per lb.....3.00c.
Strips, f.o.b. P'gh mills, base, per lb.....3.75c.
Strips, f.o.b. Cleveland mills, base, per lb.....3.75c.
Strips, f.o.b. delivered Chicago, base, per lb.....3.90c.
Strips, f.o.b. Worcester mills, base, per lb.....3.90c.

Wire Products

(To jobbers in car lots f.o.b Pittsburgh and Cleveland)

Nails, base, per keg.....$2.65
Galvanized nails, 1-in. and longer, base plus..... 2.00
Galvanized nails, shorter than 1 in., base plus..... 2.25
Bright plain wire, base, No. 9 gage, per 100 lb..... 2.50
Annealed fence wire, base, per 100 lb..... 2.65
Spring wire, base, per 100 lb..... 3.50
Galvanized wire, No. 9, base, per 100 lb..... 3.10
Galvanized barbed, base, per 100 lb..... 3.35
Galvanized staples, base, per keg..... 3.35
Painted barbed wire, base, per 100 lb..... 3.10
Polished staples, base, per keg..... 3.10
Cement coated nails, base, per count keg..... 1.85
*Bale ties, carloads, to jobbers....75, 15 and 5 per cent off list
*Bale ties, carloads, to retailers..75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers.....$65

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant, and Duluth, Minn., mills $2 a ton higher; Anderson, Ind., $1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed

(base) per lb.

Nos. 9 and 10, f.o.b. Pittsburgh.....2.30c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills, 2.40c. to 2.45c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh.....3.15c. to 3.20c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill..3.30c. to 3.35c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh.....4.20c. to 4.30c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill..4.35c. to 4.40c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh.....3.15c. to 3.20c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill..3.25c. to 3.40c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. Pittsburgh.....4.25c.

Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill..4.60c. to 4.75c.

Tin Plate

Standard cokes, per base box, f.o.b. Pittsburgh district mills.....$5.50
Standard cokes per base box f.o.b. Chicago district mills 5.60
Standard cokes, per base box f.o.b. Elwood, Ind..... 5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.20	20-lb. coating I. C.	$15.50
8-lb. coating I. C.	11.50	25-lb. coating I. C.	17.60
15 lb. coating I.C.	14.35	30-lb. coating I. C.	18.35
		40-lb. coating I. C.	20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb., $2.40 to $2.50
Large, f.o.b. Chicago, base, per 100 lb..... 2.60
Small, f.o.b. Pittsburgh.....70 and 10 per cent off list
Small, Cleveland ....70 and 10 to 70, 10 and 10 per cent off list
Small, Chicago .....70, 10 and 5 per cent off list

Rails and Track Equipment

(F.o.b.)

Rails, standard, per gross ton.....$43.00
Rails, light, billet, base, per lb.....1.60c. to 1.70c.
Rails, light rail steel, base, per lb.....1.50c. to 1.60c.
Spikes, ½ in. and larger, base, per 100 lb.....$2.80 to $3.00
Spikes, ½ in. and smaller, base, per 100 lb.....3.00 to 3.25
Spikes, boat and barge, base, per 100 lb..... 3.25
Track bolts, all sizes, base, per 100 lb..... 3.90 to 4.25
Tie plates, per 100 lb..... 2.35 to 2.40
Angle bars, base, per 100 lb..... 2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt, Weld, extra strong, plain ends

⅛	41	24½	2 to 3	61	50½
¼ to ⅜	47	30½	¼ to ⅜	+11	+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½	60	49½	1 to 1½	30	14

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1½ points, with supplementary discount of 5 per cent. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2½ per cent beyond the above discount.

NOTE—The above discounts on steel pipe also apply at Lorain Ohio. Chicago district mills have a base 2 points less. Chicago delivered base 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point having the lowest rate to destination.

Boiler Tubes

(F.o.b. Pittsburgh)

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ and 1½ in.	52	3¼ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ and 2¾ in.	39		

Hot-Rolled

2 and 2¼ in.	34	3¼ to 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing (Old List)

Carbon under 0.30 base.....86 to 88 per cent off list
Carbon 0.30 to 0.40 base.....84 to 86 per cent off list

Plus usual differentials and extra for cutting. Warehouse discounts range higher.

Seamless Mechanical Tubing (New List)

Carbon 0.10 to 0.30 base.....55 per cent off list
Carbon 0.30 to 0.40 base.....50 per cent off list

Plus differentials for lengths over 18 ft. and for commercially exact lengths.

Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 51.50 per cent iron	$4.55
Old range non-Bessemer, 51½ per cent iron	4.40
Mesaba Bessemer, 51.50 per cent iron	4.40
Mesaba non-Bessemer, 51.50 per cent iron	4.25
High phosphorus iron, 51.50 per cent	4.15

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates	$11.00 to $11.50
Chrome ore, Indian basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f., Atlantic seaboard	20.00 to 24.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	65c. to 70c.

Coke and Coal

(Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt	$2.90
Foundry coke, f.o.b. Connellsville prompt	3.75 to 4.25
Mine run steam coal, f.o.b. W. Pa. mines	1.50 to 2.00
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. W. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.35 to 1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.60

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid	115.00
Ferrosilicon, 50 per cent, delivered	82.50 to 85.00
Ferrosilicon, 75 per cent	145.00 to 147.50
Ferrotungsten, per lb. contained metal	1.00
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....$32.00
Spiegeleisen, domestic, 16 to 19 per cent..... 31.00
Ferrosilicon, Bessemer, 10 per cent, $33; 11 per cent, $35; 12 per cent, $37; electric furnace ferrosilicon, 10 per cent, $38; furnace with an advance of $1 per unit for material above 10 per cent.
Silvery iron, 6 per cent, $24; 7 per cent, $25; 8 per cent, $25 to $26; 9 per cent, $27.50; 10 per cent, $29; 11 per cent, $31; 12 per cent, $33.

Fluxes and Refractories

Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, gravel, per net ton, f.o.b. Illinois and Kentucky mines	$16.00
No. 2 lump, per net ton	19.00
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton	15.00 to 16.00
Fluorspar, No. 1 ground bulk, 95 to 98 per cent calcium fluoride, not over 2½ per cent silica, per net ton, f.o.b. Illinois and Kentucky mines	32.50

Per 1000 f.o.b. works:

Fire Clay	High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton		6.50 to 7.50

Silica Brick:	
Pennsylvania	40.00
Chicago	49.00
Birmingham	54.00
Silica clay, per ton	8.00 to 9.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)	40.00
Chrome Brick:	
Standard size, per net ton	48.00

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

Machine bolts, small rolled threads..60 and 10 per cent off list
Machine bolts, all sizes, cut threads, 50, 10 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads, 50, 10 and 10 per cent off list
Carriage bolts, cut threads, all sizes..50 and 10 per cent off list
Eagle carriage bolts .....65 and 10 per cent off list
Lag bolts .....60, 10 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads..50 and 10 per cent off list
Other style heads .....20 per cent extra
Machine bolts, c.p.c. and t. nuts, ⅝ x 4 in., 45, 10 and 5 per cent off list
Larger and longer sizes.....45, 10 and 5 per cent off list
Hot-pressed nuts, blank and tapped, square.....4c. off list
Hot-pressed nuts, blank or tapped, hexagons....4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped..4.10c. off list
Bolt ends with hot pressed nuts..50, 10 and 10 per cent off list
Bolt ends with cold pressed nuts..45, 10 and 5 per cent off list
Washers* .....6.10c. to 6c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage anl lag bolts is 5 per cent less than above for less than car lots. On hot pressed and cold punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

(Quoted with freight allowed within zone limits)

Semi-finished hex. nuts:
⅞ in. and smaller, U. S. S.....80 and 5 per cent off list
⅞ in. and larger, U. S. S.....75 and 5 per cent off list
Small sizes, S. A. E.....80, 10, and 5 per cent off list
S. A. E., ⅞ in. and larger.....75, 10 and 5 per cent off list
Stove bolts in packages.....80, 10 and 5 per cent off list
Stove bolts in bulk .....80, 10, 5 and 2½ per cent off list
Tire bolts .....50, 10 and 5 per cent off list

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

	Per 100 Net S. A. E.	Per 100 Net U. S. S.		Per 100 Net S. A. E.	Per 100 Net U. S. S.
¼-in.	$0.44	$0.44	⅞-in.	$2.35	$2.40
5/16-in.	.515	.515	1-in.	3.60	3.60
⅜-in.	.62	.66	1 1/8-in.	5.65	5.80
7/16-in.	.79	.90	1¼-in.	8.90	8.90
½-in.	1.01	1.05	1⅜-in.	12.60	13.10
9/16-in.	1.38	1.42	1½-in.	18.35	18.35
⅝-in.	1.70	1.73	1⅝-in.	21.00	21.00

Larger sizes—Prices on application.

Cap and Set Screws

(Freight allowed within zone limits)

Milled cap screws.....80, 10 and 5 per cent off list
Milled standard set screws, case hardened, 80 and 10 per cent off list
Milled headless set screws, cut thread, 80 and 10 to 80 per cent off list
Upset hex. head cap screws, U. S. S. Thread, 80, 10, 10 and 5 per cent off list
Upset hex. cap. screws, S. A. E. Thread 80, 10 and 5 per cent off list
Upset set screws.....80, 10 and 10 per cent off list
Milled studs .....75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over	$35.00
Forging billets, ordinary	40.00
Forging billets, guaranteed	45.00
Sheet bars	35.00
Slabs	35.00
*Wire rods, common soft, base, No. 5 to ⅝-in.	45.00
Wire rods, common soft, coarser than ⅝-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb	1.90c.
Skelp, sheared, per lb	1.90c.
Skelp, universal, per lb	1.90c.

*Chicago mill base is $46. Cleveland mill base, $45.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E. Series Numbers	Bars 100 lb.
2100* (1½% Nickel, 10 to 20 per cent Carbon)	$3.00 to $3.25
2300 (3½% Nickel)	4.50 to 4.75
2500 (5% Nickel)	6.00 to 6.25
3100 (Nickel Chromium)	3.50 to 3.65
3200 (Nickel Chromium)	5.50
3300 (Nickel Chromium)	7.50 to 7.75
3400 (Nickel Chromium)	6.50 to 6.75
5100 (Chromium Steel)	3.50
5200* (Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.25 to 4.50
6100 (Chromium Vanadium spring steel)	4.00 to 4.25
9250 (Silicon Manganese spring steel)	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	4.25 to 4.50
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for coal drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

FABRICATED STEEL

Awards Are Over 34,000 Tons, While Pending Business Exceeds 28,000 Tons

Railroad work, including elevated and subway, accounts for a good share of the current week's structural steel business, both in awards and new projects. Prominent among the awards is a section of the Newark Bay bridge, to be built by the Central Railroad of New Jersey, which has placed the fabrication of 4750 tons of steel with the Bethlehem Steel Corporation. A New York, New Haven & Hartford Railroad shop, 1100 tons, elevated railroad work in Chicago, taking 2500 tons, and 2200 tons of plates and shapes for a railroad equipment company in San Francisco are other outstanding contracts. A Pennsylvania Railroad office building in Philadelphia, 3500 tons, and New York subway work, 4200 tons, are among the new jobs. Awards total about 34,000 tons and inquiries about 28,000 tons. Awards include:

Varick Realty Co., column cores for building at Spring and Varick Streets, 500 tons, to Levering & Garrigues Co.

Military Park office building, Newark, N. J., 2100 tons, to Hedden Iron Construction Co.

Apartment building, 39 East Seventy-ninth Street, New York, 600 tons, to Easton Structural Steel Co.

Central Railroad of New Jersey, section of Newark Bay bridge, 4750 tons, to Bethlehem Steel Corporation.

New York, New Haven & Hartford Railroad, repair shop at Van Nest, N. Y., 1100 tons, to McClintic-Marshall Co.

Apartment building, West Ninety-sixth Street, New York, 600 tons, to Paterson Bridge Co.

Apartment building, Central Park West and 103d Street, New York, 1200 tons, to Harris Structural Steel Co.

Students' Hall, Columbia University, Amsterdam Avenue and 114th Street, New York, 1200 tons, to Hinkle Iron Co.

Apartment building, Park Avenue and Ninety-sixth Street, New York, 1250 tons, to Paterson Bridge Co.

Office building and theater, West Forty-fourth Street, New York, 300 tons, to George A. Just Co.

Apartment building, Riverside Drive and Seventy-eighth Street, New York, 1000 tons, to Paterson Bridge Co.

Bridge, New Milford, Conn., 300 tons, to Berlin Construction Co.

Boston & Maine Railroad, bridge at West Fitchburg, Mass., 160 tons, to Boston Bridge Works.

High school, East Buffalo, 950 tons, to R. S. McMannus Steel Construction Co.

Iron City Sanitary Mfg. Co., Zelienople, Pa., foundry, 670 tons, to Jones & Laughlin Steel Corporation.

Texas Co., draining racks, 500 tons, to Jones & Laughlin Steel Corporation.

Professional Building, Pittsburgh, Fullaytar Realty Co., 600 tons, to Jones & Laughlin Steel Corporation.

Crucible Fuel Co., Pittsburgh, 17 river barges, five to Jones & Laughlin Steel Corporation, 600 tons, and 12 to American Bridge Co., 1900 tons.

Wheeling Steel Corporation, Wheeling, W. Va., five river barges, 600 tons, to Jones & Laughlin Steel Corporation.

Tennessee Coal, Iron & Railroad Co., 12 barges, 1875 tons, to American Bridge Co.

Chicago Elevated Railways, Chicago, 2500 tons, to Hansell-Elcock Co.

Armstrong Hotel, Rock Island, Ill., 150 tons, to Rock Island Bridge & Iron Works.

Humble Oil Co., 15 oil storage tanks, Baytown, Tex., 4500 tons, to Reeves Mfg. Co.

Olympia Calpet Refining Co., Seattle, Wash., oil storage tanks, about 500 tons, to Puget Sound Machinery Co.

Crooked River Bridge, Oregon Highway Commission, 300 tons, to Wallace Equipment Co.

Y. W. C. A., 941 South Figueroa Street, Los Angeles, 900 tons, to Baker Iron Works.

Moneylaick Smith department store, Oakland, Cal., 175 tons, to California Steel Co.

Southern Pacific Equipment Co., San Francisco, plates and shapes, 2200 tons, and plates, shapes and bars, 140 tons, to unnamed Pacific Coast and Eastern mills.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Pennsylvania Railroad, office building at Market and Thirty-second Streets, Philadelphia, 3500 tons.

Pennsylvania Railroad, addition to Schuylkill River bridge, 350 tons.

Statler Hotel, Boston, 8000 tons.

Office building, Fulton Street, New York, 600 tons.

Apartment building, Park Avenue and Eighty-third Street, New York, 1000 tons.

Apartment building, Park Avenue and Ninety-second Street, New York, 1000 tons.

Arthur Brisbane office building, 5 East Fifty-seventh Street, 1500 tons.

Hotel, 253 West Seventy-second Street, New York, 2000 tons.

West Virginia Highway Commission, highway bridges, 900 tons.

Pennsylvania Railroad, seven small bridges, 300 tons.

New York subway, section 5, route 78, St. Nicholas Avenue, Manhattan, 4200 tons.

Apartment house, 137 Marlboro Street, Boston, 100 tons.

Gloucester Electric Light Co., Gloucester, Mass., addition, 160 tons.

Newhall Theater, Harvard Square, Cambridge, Mass., 200 tons.

Cincinnati Enquirer, Cincinnati, 3150 tons; general contract to George A. Fuller Co.

Continental Oil Co., tanks, Sapulpa, Okla., 1000 tons.

Allen Hotel, Dallas, Tex., 1200 tons.

Kansas City, Mo., tanks for waterworks, 750 tons.

Dockey Clay Mfg. Co., Kansas City, Mo., 500 tons.

Gasholder for local gas company, Muncie, Ind., 250 tons.

John Roebling's Sons Co., San Francisco, factory and warehouse, 500 tons.

RAILROAD EQUIPMENT

Illinois Central Inquiry for 1000 Box Cars Only Pending Business of Importance

In August of last year several of the railroads came into the market for substantial lots of freight cars, but at present there is no indication that this will be repeated this year. The Illinois Central's inquiry for 1000 box cars is the only pending business of importance.

July shipments of locomotives, according to the Department of Commerce, totaled 66, as compared with 110 engines in June and 140 in July, 1924.

The Illinois Central has entered the market for 1000 box cars.

The Seaboard Air Line has purchased 30 caboose cars from the Newport News Shipbuilding & Dry Dock Co. and 4 baggage-mail cars from the American Car & Foundry Co.

The Southern Railway is inquiring for 10 all-steel horse cars.

It is reported that the New York, New Haven & Hartford Railroad will inquire for 35 multiple unit electric passenger cars.

Bids have been received by the Lehigh & New England Railroad on the repair of 600 hopper cars.

The Florida East Coast Railway Co. has ordered 10 mountain type locomotives from the American Locomotive Co.

Iron and steel workers in 219 establishments numbered 273,169 in June against 281,051 in May, a reduction of 2.8 per cent, according to figures prepared by the United States Bureau of Labor Statistics. The payroll for one week in June amounted to $8,002,534, a reduction of 6.4 per cent from the $8,552,938 in May. The average wages per man showed a reduction of nearly 4 per cent.

Jointly with the Department of Commerce, the American Engineering Council is now making an economic study of air transportation. It is stated that no study of like character and scope has been made anywhere in the world. It is expected that the report of this study will meet a real need by pointing the way to successful air transportation in the United States.

NON-FERROUS METALS

The Week's Prices

Cents Per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
August	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
5.....	14.75	14.37½	59.37½	9.25	9.00	7.90	7.55
6.....	14.75	14.37½	59.37½	9.50	9.25	7.92½	7.57½
7.....	14.75	14.37½	59.25	9.50	9.25	7.95	7.60
8.....	14.75	14.37½	....	9.50	9.25	7.95	7.60
10.....	14.87½	14.50	58.87½	9.50	9.50	7.92½	7.57½
11.....	14.87½	14.62½	58.62½	9.50	9.50	7.92½	7.57½

*Refinery Quotation; delivered price ¼c. higher.

New York

NEW YORK, Aug. 11.

The market continues more active and higher. There has been heavy buying of copper at higher levels. The tin market has been only moderately active with prices stationary. Further demand for lead has lifted prices considerably higher. There has been more activity in zinc with quotations advancing.

Copper.—Convinced that lower prices are unlikely, consumers have come into the market quite freely and have been placing fairly large orders. As a result prices have continued to advance in the last week and today electrolytic copper seems firmly entrenched at 14.62½c., refinery, or 14.87½c., delivered. Early today there was a little metal available at 14.75c., delivered, but by noon it was claimed that 14.87½c. was the minimum with substantial sales made at that level for delivery in the Connecticut valley. One seller reports business done at 15c., delivered in the West, and at 14.95c. c.i.f. for export. The delivery involved in practically all cases for domestic consumption is through October, but not beyond. Lake copper is quoted at 14.87½c., delivered.

Tin.—The week has been a quiet one with Thursday, Aug. 6, practically the only active day when about 300 tons changed hands, divided about equally between consumers and dealers. Some London dealers were among the buyers here. Yesterday the market was stagnant with sales down to a minimum of 100 tons and today demand has not been much better. Spot Straits tin today was quoted at 58.62½c., New York. In London prices were about £3 per ton less than a week ago, with spot standard quoted at £261 10s., future standard at £264 and spot Straits £267. The Singapore price yesterday was £271 5s. Arrivals thus far this month have been 3175 tons, with 6435 tons reported afloat.

Lead.—Prices in the outside market are entirely nominal and difficult to gage. It is almost impossible to buy lead for any position, so tight is the situation. There is an entire absence of any broad market, though conditions are a little quieter than in the last few weeks. Sales as high as 9.50c., St. Louis, have been made, which is the equivalent to 9.85c., New York. The leading interest has advanced its contract price twice during the week until it now stands at 8.90c., New York.

Zinc.—Both galvanizers and brass makers have continued active buyers which, together with still higher prices for ores have resulted in advancing quotations. Prime Western zinc sold as high as 7.60c. late last week and today is quoted at 7.57½c., St. Louis, or 7.92½c., New York.

Nickel.—Ingot nickel in wholesale lots is still quoted at 34c. with shot nickel at 35c. Electrolytic nickel is obtainable at 38c.

Antimony.—Spot Chinese metal is scarce and largely nominal at 18.12½c. to 18.25c., New York, duty paid. August shipment from China is held at 16.75c., with September-October shipment at 16.25c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c., delivered.

Old Metals.—Prices continue to advance and the market is active. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	14.00
Copper, heavy and wire	13.25
Copper, light and bottoms	11.50
Heavy machine composition	10.50
Brass, heavy	8.75
Brass, light	7.75
No. 1 red brass or composition turnings	9.50
No. 1 yellow rod brass turnings	9.50
Lead, heavy	7.75
Lead, tea	6.75
Zinc	5.25
Cast aluminum	19.50
Sheet aluminum	19.50

Chicago

AUG. 11.—All of the virgin metals, with the exception of tin, have again advanced. Buying has increased, but not so much as recent advances would lead one to expect. Copper appears to be the most active metal. Lead demand is insistent, but lead buyers appear to be afraid to contract for their full needs, not having confidence in the stability of the advanced quotations. Among the used metals all except the tin grades have gone up. We quote, in carload lots: Lake copper, 14.80c.; tin, 60c.; lead, 9.65c.; zinc, 7.65c.; in less than carload lots, antimony, 19.50c. On old metals we quote copper wire, crucible shapes and copper clips, 12c.; copper bottoms, 10.50c.; red brass, 9.25c.; yellow brass, 7.75c.; lead pipe, 7.50c.; zinc, 4.50c.; pewter, No. 1, 32.50c.; tin foil, 41c.; block tin, 46c.; all buying prices for less than carload lots.

Finished-Steel Operations Show Increase at Youngstown

YOUNGSTOWN, Aug. 11.—With steel plant operations stationary, finishing mill schedules in the Youngstown district show moderate accessions this week. Independent and Steel Corporation bar mill capacity is occupied close to 90 per cent. The Carnegie Steel Co. is operating all bar mills in this area on three shifts, except one unit. The Trumbull Steel Co. had scheduled all of its tin mills at the Warren and Leavittsburg plants except one. The Republic Iron & Steel Co. added four more sheet mills at its Niles works, for a total of 16.

Of the 127 sheet mills in the Mahoning Valley, 99 were scheduled to start Sunday midnight or Monday, but indications were that a number of suspensions would occur within a few days because of the hot weather. Some reduction in active tin mill capacity is also anticipated before the week ends for this same reason.

Of 18 pipe mills, 13 are under power; strip mills are close to capacity; two of three plate mills are active; rod and wire capacity is active at 85 per cent.

Thirty-four of the 52 independent open-hearth furnaces in this area are in operation, while Bessemer converters are producing steel at an 85 per cent rate. Steel Corporation subsidiaries have increased the number of open-hearth furnaces from 20 to 22 active, of a total of 30.

"Permissible Explosives, Mining Equipment, and Rescue Apparatus Approved Prior to Jan. 1, 1925," is the title of a 35-page pamphlet issued by the United States Bureau of Mines and obtainable from the Superintendent of Documents, Government Printing Office, Washington, at 5c. The title covers clearly the character of the contents. Explosives are listed by brand, with the name of the manufacturer and some details as to expected performance, etc.

According to the Electric Hoist Manufacturers Association, the number of hoists ordered in July was 19.4 per cent more than in June, 1925, and the value 17.33 per cent more than in the previous month.

PERSONAL

E. B. Harkness was elected secretary, A. W. Carlisle, treasurer, and H. Morrison, auditor, of the Illinois Steel Co., Chicago, the changes having been occasioned by the recent death of Thomas J. Hyman, secretary-treasurer. Mr. Morrison was also elected a director of the company, succeeding Mr. Hyman. Mr. Harkness has been identified with the Illinois Steel Co. for 28 years. His first connection was with the first vice-president's office, and in 1909 he was made assistant secretary. In 1923 he was also made assistant treasurer. He was born at Bloomington, Ill. Mr. Carlisle is a native of Montreal, Canada, and has been in the employ of the Illinois Steel Co. for 35 years, all of that time in the treasurer's department. In 1901 he was appointed cashier, the position he has held up to the present. Mr. Morrison, who is a native of Chicago, has been with the Illinois Steel Co. 38 years, having started work with the company at South Chicago. He became assistant auditor at the South Chicago plant and subsequently was appointed auditor at the Joliet works. He left Joliet shortly after the United States Steel Corporation was formed and was attached to the staff of the operating department at Chicago. In 1910 he became auditor of the Illinois Steel Co. at Chicago under Mr. Hyman. He is now in full charge of all accounting matters and also becomes a director. All three of the successors to the various duties of Mr. Hyman have spent their entire business careers with the Illinois Steel Co.

New official appointees in the Illinois Steel Co. whose business careers have been entirely in the service of that company—a total of 101 years

E. B. HARKNESS

A. W. CARLISLE

H. MORRISON

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Percy M. Brotherhood, formerly first vice-president Manning, Maxwell & Moore, Inc., opened an office Aug. 1 at 25 Church Street, New York, as consultant in machine tools and various specialties and investigation and appraisal work. Mr. Brotherhood was associated with Manning, Maxwell & Moore, Inc., for 30 years.

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Edward M. Adams, first vice-president Inland Steel Co., Chicago, has been appointed a member of a committee of the Illinois State Waterways Association, which will attempt to unify all waterway associations in Chicago and to organize a publicity and educational campaign for the completion of a deep waterway from Chicago to the Gulf of Mexico. Appointment of the committee was in line with a resolution passed at a recent meeting, at which it was decided that the various independent associations supporting the waterway should merge with the Mississippi Valley Association.

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Charles N. Bowne has been appointed sales engineer at Philadelphia of steam engines and boilers for the Ames Iron Works.

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George J. Danz, formerly vice-president of the Hofius Steel & Equipment Co., Seattle, Wash., has been appointed manager there for Norton, Lilly & Co., large operators of intercoastal vessels.

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Manly B. Brown has resigned from the Chicago sales division of the Wheeling Steel Corporation and has become associated with A. W. Crotsly, under the firm name of Crotsly & Brown, with offices at 130 North Wells Street, Chicago. Mr. Crotsly resigned from the management of the Chicago and Northwestern territory of the Wheeling corporation last September, after 25 years of service with the company and its subsidiaries. Since that time he has been engaged in the importing and exporting of iron and steel, as well as in the sale of domestic mill products. The new firm will continue to operate in this field, handling ferroalloys, sheets, strip steel, bolts, rivets, tin plate, and various other products. It also has the agency for Illinois, Wisconsin, Northern Indiana and Western Michigan for H. Hollensen & Co., New York, American representatives of the Stinnes enterprise, exporting, largely from Hamburg, such products as files and hack saw blades, fluorspar, ferromanganese and Austrian magnesite.

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George A. Lennox has been appointed assistant general sales manager of the Driver-Harris Co., with headquarters at the main office and plant at Harrison, N. J. He has been with the company for several years, serving in practically all departments. In recent years he has devoted himself to selling and application work, and was district manager for some years in Chicago. He later took charge of the company's activities in New England and Northern New York.

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Frank R. Schubert has been appointed general manager of the Strom Ball Bearing Co., Chicago.

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Neil C. McNutt, formerly of the general sales department, Trumbull Steel Co., at Warren, Ohio, has been transferred to the Cleveland district branch of the company, with headquarters in the Hanna Building, Cleveland.

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B. H. Elliott has been named Chicago district manager of sales of the Union Drawn Steel Co., Beaver Falls, Pa., succeeding the late A. D. Dorman. Chicago offices of the company now are in the Tribune Tower, Michigan Boulevard.

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Daniel F. Swartz has been elected to succeed John M. Young as president of Sweet's Steel Co., Williamsport, Pa. Mr. Young, who soon becomes 80 years of age, announced his resignation a few weeks ago. Mr. Swartz has been with the company 17 years, having started as bookkeeper and advanced to assistant treasurer, then secretary-treasurer. John E. Spotts will succeed him as treasurer and Clarence L. Peaslee will take Mr. Young's place on the executive committee.

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Roysel John Cowan, metallurgist National Malleable Steel Castings Co., Toledo, Ohio; Alvin William

Holmes, metallurgist, Muncie, Ind.; James Sebold Vanick, research metallurgist International Nickel Co., Bayonne, N. J., and Sidney David Williams, metallurgical engineer, Midland, Pa., will be proposed for membership in the Iron and Steel Institute at the autumn meeting, Sept. 9-11, at Birmingham, England. Irvin George Knoebel, Belleville, Ill., student in the Missouri School of Mines and Metallurgy, is proposed for associate membership.

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Thomas W. Oberhauser, who has been assistant manager of the pipe sales department, Wheeling Steel Corporation, Wheeling, W. Va., has been promoted to manager of that department. Until May 1, last, when the Wheeling corporation consolidated its Pittsburgh sales office with its Wheeling district sales office, Mr. Oberhauser had been Pittsburgh district sales manager for nearly four years. He had previously been in charge of the Pittsburgh office of the Wheeling Steel & Iron Co., which, in July, 1920, was merged with LaBelle Iron Works and the Whitaker-Glessner Co., to form the Wheeling Steel Corporation. With his transfer to Wheeling this year, he was made manager of the Wheeling district sales department, which, besides Wheeling, embraces the territories of the Pittsburgh, Cleveland and Buffalo offices. Subsequently, he was appointed assistant manager of the pipe sales department. Before becoming affiliated with the Wheeling Steel & Iron Co., he had been with the Crane Co., Chicago, for several years.

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Russell Davis, superintendent of the Lakeside plant of the Otis Steel Co., Cleveland, has been appointed general superintendent of all the mill departments of the company. Paul E. Butler, who has been superintendent of the open-hearth department, has resigned, effective Aug. 1, and will reside in Chicago after Sept. 1. James O'Neil succeeds him as general superintendent open-hearth department.

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Sir Arthur Balfour, president Balfour Steel Co., Sheffield, England, will spend a few days in Cleveland during the second week in August and will address the Cleveland Engineering Society and associated organizations. The date for the meeting has not yet been set. He is one of the industrial leaders of the British Empire, a cousin of the former British premier and past-president of the Chamber of Commerce of Great Britain.

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F. S. Van Bergen has been appointed district sales manager in Minneapolis for the W. A. Jones Foundry & Machine Co., Chicago. He will cover Minnesota, North Dakota, South Dakota and parts of Iowa and Wisconsin, handling the company's entire line.

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William J. Priestley, formerly located at 817 Oliver Building, Pittsburgh, as metallurgical engineer for the Electro-Metallurgical Sales Corporation, has been transferred to the home office, 30 West Forty-second Street, New York, in the capacity of assistant general sales manager of the Electro-Metallurgical Sales Corporation and assistant general sales manager of the electrode division of the National Carbon Co. Mr. Priestley will continue his interest in giving metallurgical service to the customers of the above companies. R. S. Porster, formerly connected with the United Alloy Steel Corporation, Canton, Ohio, and now with the Alan Wood Iron & Steel Co. at Norristown, Pa., has been employed to succeed Mr. Priestley as metallurgical engineer at Pittsburgh, effective Oct. 1.

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E. E. Goodwillie, district sales agent at Chicago for the Bethlehem Steel Co., has been appointed steel sales representative on the Pacific Coast with headquarters at San Francisco, succeeding Leigh B. Morris, resigned. Mr. Morris was for some twenty years district sales manager in New York for the Cambria Steel Co. and its successor, the Midvale Steel & Ordnance Co., before going to San Francisco for the Bethlehem company when the latter took over the Midvale company. John F. Hennessy, district sales agent at Cincinnati, has been transferred to Chicago to succeed Mr. Goodwillie.

OBITUARY

AUGUST SLUSSER, works manager Westinghouse Electric & Mfg. Co. foundry, Trafford City, Pa., died in his home there on Aug. 3. He was born in Louisville, Ohio, in 1875, later moving with his family to Canton, Ohio. When 20 years old he entered the service of the Morgan Engineering Co., Alliance, Ohio, and a year later joined the Westinghouse company as a foreman in the Pittsburgh works. His career with the company was one of continuous progress to the executive capacity as works manager of the Trafford City foundry. He was a director of the First National Bank, Trafford City, president of the Trafford Oil & Gas Co. and president of the McKeesport-Versailles Gas & Oil Co. He was a member of the first borough council of Trafford City after it was incorporated in 1903.

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WILLIAM S. GRAFTON, aged 80, founder of the Grafton Mfg. Co., Martins Ferry, Ohio, now known as the Acme Sheet Metal Works, died at his home in Wheeling, W. Va.

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EDWARD FIELD ROSS, aged 69 years, for many years associated as salesman with tool and steel companies, died July 21 at his home in Clinton, N. Y. He was associated as selling head of Fayette R. Plumb, Inc., Philadelphia, for many years and later held a similar position with the Atha Tool Co. and the Atha Steel Co., Newark, N. J., previous to their acquisition by other interests. He then went with Wiley & Russel, later Greenfield Tap & Die Corporation, from which he retired five years ago on account of ill health.

Steel Market in Seattle

SEATTLE, WASH., Aug. 6.—Local steel prices as yet have not advanced, but are firmer, several sales managers of Eastern mills having received advices not to sell at present prices for delivery beyond Sept. 30, and to submit all inquiries for last quarter to the home office before quoting.

Local work in the market includes a viaduct for the Pacific highway at Tacoma, bids to be opened Sept. 1, about 300 tons for a bridge at Vantage ferry, and about 250 tons for a local apartment, bids to be asked late this month. The State of Washington has a vigorous campaign laid out for road building, and the replacement of old wooden bridges with cement or steel that may eventually mean considerable steel tonnage.

Two Eastern mills are holding plates at 2.40c., one at 2.60c., for last quarter, but for fairly prompt shipment they are available at 2.35c., Seattle, and on an attractive inquiry for quick shipment, the last mentioned price might be shaded about $1 per ton.

Steel bars are quoted at 2.35c., delivered, Seattle, by two Eastern mills, but practically all the local business in merchant and reinforcing bars is taken by the Pacific Coast Steel Co., which has the advantage of about 75c. per ton in freights against the Eastern makers. The demand for reinforcing bars is fairly active.

A Southern mill, that has the benefit of a low all water rate to Seattle, is quoting wire nails at about $3.25 base, per keg, Seattle. The Columbia Steel Co. with wire mills in lower California is also naming lower prices than the Eastern mills for delivery in this market. Cement coated nails are in fair demand for fish containers and other purposes. One Pittsburgh mill that has a close connection with a local jobbing house is taking most of the business in this territory.

Local scrap is very quiet, with prices weak, due to the fact that the Pacific Coast Steel Co. has been practically out of the market for some time. Heavy melting scrap, originating from the local railroads, is weak at $9. Cast iron scrap is about $13.50 to $14.50 per gross ton.

Machinery Markets and News of the Works

OUTLOOK MORE PROMISING

Despite August Lull the Machine Tool Trade Continues Optimistic

Missouri Pacific Railroad Buys a Large List of Tools and Other Shop Equipment

PROSPECTIVE machine tool buying offers a good deal of encouragement to the trade, although business in the past week has been of small proportions. Many manufacturers are figuring on equipment, but their buying will be delayed until they see how the general business situation develops.

For the first time in many weeks some improvement is noted in New England. The Chicago market has been quiet during the past week, but there are indications of better buying as soon as the vacation period is over.

The purchases of the Missouri Pacific Railroad, mentioned last week, ran into a fairly large figure. The Santa Fe and Burlington roads have made additional purchases at Chicago.

New York

NEW YORK, Aug. 11.

THE machine tool trade continues to expect better things, but thus far there has been no marked improvement in business, the summer lull still being here. Many manufacturers are figuring on equipment, however, which will be purchased if general business improves in the early fall. Purchases in this district in the past week have been almost wholly confined to single machines. The New York Central Railroad bought a 48-in., 500-ton wheel press. The Westinghouse Electric & Mfg. Co. bought three Pratt & Whitney hand screw machines for its Newark works. An Eastern company has received an order from the C. F. Braun Co., Alhambra, Cal., for a 60-in. x 21-ft. engine lathe.

The Keenan Barrier & Engineering Corporation, New York, has been organized to manufacture a patented emergency traffic barrier to be used by railroads. The company is interested in making arrangements with a manufacturer equipped for this line. Address care of John J. Keenan, 35 City Hall Place.

The T. C. M. Mfg. Co., Harrison, N. J., is in the market for a Morris Thomson thread milling machine, type 3F.

The Steel Furnaces Corporation, 19 West Forty-fourth Street, New York, capitalized at $500,000, will exploit patents of special annealing processes and furnaces, applicable to a wide variety of steel products, particularly tin plate, sheets, wire and cold rolled strip steel. K. A. Herrmann is vice-president.

The Steel-Bound Equipment Co., 1133 Broadway, New York, recently incorporated, is manufacturing material handling equipment, particularly industrial trucks. It has a factory at Spring Valley, N. Y., and its requirements include steel, bolts and nuts, lockwashers, etc. F. B. Lown, vice-president and treasurer, was formerly president of the Century Steel Co.

The American Pattern Foundry & Machine Co., 26 Forest Avenue, Glen Ridge, N. J., has been organized to manufacture radio equipment. W. G. Whiteley is one of the principals.

The Vacuum Oil Co., 61 Broadway, New York, manufacturer of lubricating oils, has awarded a general contract to the Turner Construction Co., for a two-story storage and distributing plant at East Tenth Street and East River, 95 x 190 ft., to cost approximately $175,000 with equipment.

The Consolidated Wire & Associated Corporations, 309 Fifth Avenue, New York, is in the market for a quantity of insulated wire.

The Perfect Window Regulator Co., Van Alst Avenue, Long Island City, has acquired a factory, 100 x 100 ft., adjoining its plant for the manufacture of automobile hardware specialties.

The Colt-Stewart Co., Inc., 1745 Broadway, New York, local representative for the Chrysler automobile, has leased the three-story building at Broadway and Fifty-sixth Street, and space in the adjoining building on Forty-sixth Street, for a service, repair and headquarters building.

Charles H. Lench and Edward I. Shire, 373 Fourth Avenue, New York, associated architects, have plans for a three-story service, repair and garage building, 100 x 125 ft., at 332-40 East Seventy-sixth Street, to cost about $150,000 with equipment.

The Standard Oil Co., 26 Broadway, New York, will build a one-story addition to its service, repair and garage building at Mount Vernon, N. Y., 70 x 100 ft. It has also awarded a general contract to the Tucker Construction Co., for a new storage and distributing plant at Greenport, N. Y., with one-story automobile service, repair and garage building adjoining, reported to cost $85,000. Contract has been let to J. D. Cosgrove, Glen Cove, N. Y., for a one-story storage and distributing works, 85 x 150 ft., at Cold Spring Harbor, N. Y., with one-story service, repair and garage building, to cost approximately $80,000.

The Keystone Equipment Co., 1947 Broadway, New York, has inquiries out for two saddle tank locomotives, 11 x 16, standard and 36-in. gage; also for a number of locomotive type or economic boilers, 40 to 50 hp., to operate at about 125 lb.

The Postal Telegraph Co., 253 Broadway, New York, has leased property at 132-40 King Street, totaling 7500 sq. ft., for a new mechanical and electrical repair shop.

The Manhattan Rubber Co., 120 Broadway, New York, manufacturer of mechanical rubber products, has awarded a contract to the Austin Co., for a three-story addition to its plant at Passaic, N. J., 80 x 140 ft., to cost $65,000.

Fire, Aug. 2, destroyed a portion of the plant of the Holdfast Mfg. & Novelty Co., 520 Monroe Street, Carlstadt, N. J., manufacturer of metal specialties, with loss reported at $80,000 including equipment. Rebuilding plans are under advisement. J. H. Krumpetz is president.

The Standard Kalomein Door Co., 235 Sixth Street, Brooklyn, N. Y., is planning to purchase a veneer press and other equipment.

The New York State Bridge and Tunnel Commission and the New Jersey Interstate Bridge and Tunnel Commission, room 3004, Woolworth Building, New York, are asking bids until Sept. 8 for 90 ventilating and transformer fans, with motors, controls and transmissions, for the New Jersey ventilation buildings, contract No. 12.

The Jamaica Water Supply Co., Jamaica, L. I., is planning for the construction of a pumping plant on 143rd Street, near 111th Avenue. A similar pumping station is also proposed on 224th Street, near Foch Boulevard.

De Paoli Brothers, 338 West Thirty-eighth Street, New York, manufacturers of tile, have plans for a three-story factory, 38 x 100 ft., at 527-29 West Forty-fifth Street, for which bids will be asked soon. Louis De Paoli is president.

The Standard Oil Co., 26 Broadway, New York, has filed plans for a four-story storage and distributing plant at Linden, N. J., to be used in connection with its by-products refineries at Bayonne, N. J., estimated to cost $400,000 with equipment. It has awarded a general contract to Charles Flocken, 681 Newark Avenue, Elizabeth, N. J., for an addition to its Bayway refinery, Elizabeth, to cost $30,000.

The A. P. Smith Mfg. Co., 111 Norman Street, East Orange, N. J., manufacturer of waterworks machinery, has acquired the factory of the Simms Magneto Co., Arlington Avenue, East Orange, and will use a portion of the plant for extensions.

The Board of Education, Cliffside Park, N. J., plans the installation of manual training equipment in its proposed new high school, estimated to cost $325,000, for which bids will be asked soon. Ernest Sibley, Bluff Road, Palisades, N. J., is architect.

The Bayonne Steel Products Co., 264 Jelliff Avenue, Newark, has awarded a general contract to Enstice Brothers, 111 Academy Street, for a three-story and basement addition, 75 x 95 ft., to be used primarily as a storage and distributing plant, to cost $80,000 with equipment.

The American Thermos Bottle Co., 366 Madison Avenue, New York, has been organized to manufacture as indicated. It represents a consolidation of the American Thermos Bottle Co. of Maryland and the Icy-Hot Bottle Co. of Ohio.

Philadelphia

PHILADELPHIA, Aug. 10.

CONTRACT has been awarded by the Ajax Metal Co., 46 Richmond Street, Philadelphia, to M. Ward Easby, Inc., 1505 Race Street, for an addition to its plant to cost about $18,000.

Joseph A. Brady, 136 South Fourth Street, Philadelphia, has awarded a general contract to the McCloskey Co., Inc., 1620 Thompson Street, for a two-story automobile service, repair and garage building, 95 x 145 ft., to cost $100,000 with equipment.

The Buick Motor Co., Broad and Poplar Streets, Philadelphia, has leased a six-story building at Sixteenth Street and Indiana Avenue, recently completed, for a general service and repair department, with department for the storage and distributing of new cars.

Blumenthal Brothers, Margaret and Bermuda Streets, Philadelphia, plan the construction of a power plant at their proposed new chocolate factory to cost $90,000. The Ballinger Co. is architect.

The Van Sciver Corporation, Twenty-fourth Street near the Parkway, Philadelphia, building supplies, has acquired about 17 acres at Fifty-third Street and the Schuylkill River and is said to be arranging for a new storage and distributing plant to occupy a portion of the site.

The Crew Levick Co., 219 North Broad Street, Philadelphia, petroleum products, operated by Henry L. Doherty & Co., 60 Wall Street, New York, is disposing of a note issue of $1,500,000, a portion of the fund to be used for extensions and improvements in refineries and properties. It recently completed the construction of a new refinery on Petty Island, Philadelphia.

The Huff-Daland Co., Ogdensburg, N. Y., manufacturer of airplanes and parts, is removing machinery from its local plant to its new works at Bristol, Pa., where property recently was acquired, and proposes to have the plant ready for service by the end of September.

The Board of Education, Elizabethtown, Pa., will build a manual training shop in connection with a proposed new school, for which bids are being asked on general contract until Aug. 17. Harry H. Wehmeyer, 509 West Cumberland Street, Philadelphia, is architect.

A one-story power house, 47 x 50 ft., will be erected by the Oscar Nebel Co., Fifth and Courtland Streets, Philadelphia, at its new textile mill at Hatboro, Pa., to cost approximately $130,000. The William Steele & Sons Co., Philadelphia, is architect.

The Haverford Township School Board, Haverford, Pa., plans the installation of manual training equipment in its two-story and basement junior high school on the Coopers-town Road, Brookline, Pa., estimated to cost $225,000, for which plans are being prepared by Boyd, Abel & Gugert, Otis Building, Philadelphia, architect.

The Borough Council, Bath, Pa., will receive bids until Aug. 19 for a deep-well pump, centrifugal pumping equipment, motors, starters and accessory equipment for a proposed pumping station for the municipal waterworks. A. J. Bibighaus, 530 Hamilton Street, Allentown, Pa., is engineer. W. U. Helfrich is secretary of the council.

The New York Central Railroad Co., New York, has arranged an appropriation of $397,000 for extensions and improvements in its locomotive shops at Avis, Pa., including work now in progress and proposed expansion. Additional equipment will be installed in the power house, including apparatus for burning powdered fuel.

The J. W. Paxson Co., Luzerne and D Streets, Philadelphia, is inquiring for a 6- or 8-ft. vertical boring machine.

The N. C. Gressman Co., Drexel Building, Philadelphia, is inquiring for 8- and 9-in. extra heavy wrought pipe in 15½-ft. lengths.

The Slatington, Pa., iron rolling mill, idle for more than two years, will resume operations provided town residents subscribe for a $25,000 bond issue offered through the local civic association. This, with $50,000, to be furnished by Grant & Co., New York, owners and operators of the mill, will be used for repairs.

The East Penn Electric Co., Pottsville, Pa., has plans for extensions in its steam-operated electric generating station at Pine Grove, Pa., and the installation of considerable additional equipment. The cost is reported at close to $250,000.

Buffalo

BUFFALO, Aug. 10.

THE American Radiator Co., Elmwood Avenue, Buffalo, is reported to be contemplating enlargements in its plant at North Birmingham, Ala., to double, approximately, the present capacity.

The Packard Motor Car Co. of Detroit, 300 Delaware Avenue, Buffalo, is said to be planning the construction of a new factory branch at Main and Riley Streets, including service, repair and garage departments, to cost more than $100,000, with equipment.

Frank Cholewka, 484 Fillmore Avenue, Buffalo, has applied for permission to construct an automobile parts and service works, 30 x 85 ft., at 480 Fillmore Avenue.

The Otis Elevator Co., 162 Girder Street, Buffalo, has awarded a general contract to C. Everitt, 295 Auburn Avenue, for a one-story machine shop, 96 x 120 ft., to cost about $35,000. W. E. Van Horn is in charge.

The Tew Motor Sales Co., 78 West Bridge Street, Corning, N. Y., has completed plans for a one and two-story service, repair and garage building, 65 x 125 ft., to cost $65,000. W. H. Tew is head.

The Fitch Gear Co., Rome, N. Y., manufacturer of wagon gears, parts, etc., will discontinue operations and purposes to place its property on the market.

The Burger Stamping & Spinning Mfg. Co., Fourth and Carolina Streets, Buffalo, has been incorporated with $25,000 capital stock to manufacture a general line of stamping and spinning work. Operations have been started. A. Burger is president.

The Pearl City Boiler & Steel Boat Co., 222 West Eleventh Street, Jamestown, N. Y., has filed plans for the erection of a one story brick addition, 40 x 60 ft., for which some equipment will be required.

Fred W. Young and associates, Villanova, Pa., are in the market for electrical power equipment for installation in proposed local power and light plant.

Chicago

CHICAGO, Aug. 10.

THE first week in August was unusually quiet in the Chicago machine tool trade, but the sluggishness of the market is attributed to the fact that the vacation season is at its height. Encouragement is found in the large amount of prospective buying, which is expected to develop from numerous inquiries emanating from diverse sources. While a large part of these inquiries may not be converted into actual orders until September, there seems to be little uncertainty that they represent actual needs.

Approval of recent tentative orders for machine tools for the Tilden technical high school has again been delayed until a meeting of the Chicago Board of Education on Wednesday of this week. The Central Board of Purchases, Milwaukee, is taking bids Aug. 14 on a 26-in. crank shaper, 24-in. engine lathe with 92 in. between centers, No. 3 universal milling machine, and a floor grinder to carry two 14 x 2-in. emery wheels. All of these machines are to be motor-driven.

Both the Santa Fe and the Burlington railroads have made additional purchases of machine tools. Among machines recently ordered by the Burlington are two boring bars and two engine lathes.

The Universal Tamping Machine Co., 301 Alexander Street, Peoria, Ill., will erect an addition with 3600 sq. ft. of floor space to cost $7,000.

The Glide Road Machinery Co., Minneapolis, has purchased the former plant of the Pandolfo Mfg. Co., St. Cloud, Minn., and will use it for the manufacture of road machinery.

The Burton Mfg. Co., manufacturer of electric meat block scrapers, electric paint and varnish removers, and electric floor scrapers, 4554 Broadway, Chicago, will move to Chicago Heights, Ill. Temporarily all of its brass and aluminum castings will be made by the Chicago Heights Brass Foundry and its machine work will be done by the Chicago Heights Machine & Repair Co. Within a short time, however, the company will arrange for a building of its own.

The Carter-Mayhew Mfg. Co., 655 Nineteenth Avenue, Minneapolis, manufacturer of grain cleaning machinery, will build a one-story addition to cost $35,000.

The Stearns-Roger Mfg. Co., Denver, Colo., has purchased the gray iron casting business of the Queen City Foundry Co., that city, including all patterns, flasks and equipment.

J. Pointner has started the construction of a machine shop at Coeur D'Alene, Idaho.

Swift & Co., Union Stock Yards, Chicago, have plans for a new two-story cold storage and refrigerating plant, 35 x 130 ft., at Hampton, Iowa, on which work will begin in September.

The Central Chicago Garages, Inc., H. B. Peabody, president, 510 Cass Avenue, Detroit, is having plans drawn for a ten-story automobile service, repair and garage building, 50 x 100 ft., at Kinzie and State Streets, Chicago, to cost $750,000 with equipment. R. O. Derrick, 120 Madison Street, Detroit, is architect.

The Barber-Colman Co., River and Loomis Streets, Rockford, Ill., manufacturer of chucks, drills and other cutting tools, has awarded a general contract to the Holm Page Co., local, for its two-story addition, 84 x 130 ft., to cost approximately $40,000.

Hesser & Sodin, 1234 Morse Avenue, Chicago, have filed plans for a two-story addition to their service, repair and garage building, 150 x 172 ft., estimated to cost $200,000 with equipment. Fox & Fox, 70 West Monroe Street, are architects.

The Cosgrove-Meehan Coal Co., Panama, Ill., has started work on a new steam-operated electric power plant at its local properties, to cost about $125,000, including equipment.

The Northwestern Barb Wire Co., Sterling, Ill., has awarded a general contract to the Austin Co., Chicago, for a two-story storage and distributing plant, 80 x 140 ft., to cost about $55,000 with equipment.

The Hughes Electric Co., Bismarck, N. D., has tentative plans for the construction of several auxiliary electric generating plants to be located at Mandan, Hebron and Richardson, N. D., to cost in excess of $200,000 with transmission system.

The Southern Illinois Gas Co., Murphysboro, Ill., is planning for extensions and betterments in its steam-operated electric generating plant, including the installation of a 450-kw. steam-turbo unit, 500-hp. boilers and accessory apparatus, estimated to cost $300,000.

The South Side Auto Sales Co., 1143 East Sixty-third Street, Chicago, is having revised plans drawn for a two-story and basement service, repair and garage building, 50 x 125 ft., to cost $100,000. Lowenberg & Lowenberg, 111 West Monroe Street, are architects.

The Smith Machinery Co., 817 West First Street, Hastings, Neb., has awarded a general contract to Johnson Brothers, Hastings, for a one-story storage and distributing plant, 60 x 260 ft., with repair department, estimated to cost $65,000. Marcus L. Ebans, Brandes Building, is architect.

The Board of Education, Kenilworth, Ill., plans the installation of manual training equipment in its proposed two-story and basement second high school unit to cost $750,000. F. C. Warner and W. R. McCormack, 510 Bulkley Building, Cleveland, are architects.

The Midwest Portland Cement Co., U. S. National Bank Building, Denver, organized with $6,000,000 capital stock, will operate a cement mill. It will erect a plant and will be in the market for materials and equipment. Roy R. Randall is sales manager.

The Thaete Automatic Valve Corporation, 902 Patterson Building, Denver, has been organized with $250,000 capital to manufacture automatic valves. Arrangements have been made to manufacture by contract and to handle distribution through the Empire Brass Mfg. Co., Cleveland.

The Traylor Engineering Co., Allentown, Pa., has been awarded a general contract by the Colorado Portland Cement Co. for the erection of a cement plant at Fort Collins, Colo., with a daily capacity of 3500 bbl. Considerable equipment will be required.

New England

BOSTON, Aug. 10.

FOR the first time in many weeks a slight improvement is noted in the volume of machine tool business in this market. Current activity, however is confined to used equipment. One house reports the sale of eight tools, including two lathes, a screw machine, a grinder and a shear. Among other transactions were a 24-in. x 10-ft. lathe and a 26-in. upright drill to an Everett shop; a 6-in. pipe machine to a Walpole company; a cylindrical grinder and a fairly large surface grinder to a nearby company and several other less important used tools to different shops, all within a short distance of Boston. A new 10-in. shaper to a Massachusetts plant also is reported as sold. The Gurney Heater Mfg. Co., Framingham, Mass., has installed a number of molding machines to replace the old method of hand molding.

New inquiries are coming in slowly, but machine tool houses have a large number of quotations out which give fresh indication of developing into business soon. Industrial New England is gradually increasing activity, particularly those industries using and needing machine tools. The United Shoe Machinery Corporation, Beverly, Mass., last week put out more machinery than in any previous week in considerably more than a year. Contrary to general belief that company's business so far this year has been practically normal. The General Electric Co.'s Lynn and Pittsfield plants are running full, while textile machinery makers, especially those manufacturing silk looms, have a brighter outlook than at any previous time this year. Railroad shops are steadily increasing production, and indications are that at least one New England carrier will purchase machine tool equipment early in the fall. The shop of the Boston & Maine Railroad at Billerica, Mass., last month reconditioned 25 locomotives, the biggest month on record, with 200 less on the payroll than the previous normal number of workers. The shop today employs approximately 1100 mechanics and laborers. Woolen mills, by cutting prices of labor and product are increasing sales and profits, thereby placing themselves in a better position to buy much needed machine tools later in the year.

The Remington Noiseless Typewriter Co., 374 Broadway, New York has started work on a two-story manufacturing plant at Middletown, Conn. Plans are private.

Contract has been awarded by the Neveroil Bearing Co., Foundry Street, Wakefield, Mass., for a 15 x 25 ft. boiler house, and a one-story, 32 x 42 ft. manufacturing unit. Plans are private.

Bids closed last week for a one-story, 30 x 50 ft. boiler house, and a 50 x 140 ft. manufacturing plant contemplated by the Watertown Mfg. Co., Echo Lake Road, Watertown, Conn. Fletcher-Thompson, Inc., 542 Fairfield Street, Bridgeport, Conn., are the architects.

The Salisbury Iron Co., Lime Rock, Conn., charcoal iron, recently lost its foundry by fire. It is not the intention to rebuild.

The Petroleum Chemical Corporation, Providence, R. I., has acquired 30 acres at Tiverton, R. I., on which it proposes to erect a large and manufacturing plant. It produces all kinds of petroleum products.

The Norwalk Co., South Norwalk, Conn., has been awarded contract for two motor-driven compressors at $15,156 by the Department of the Interior, Washington.

The Bethlehem Electric Co., Bethlehem, N. H., will begin the construction of its proposed hydroelectric generating plant on the Ammonusoc River, estimated to cost $100,000 with equipment.

The George H. Lincoln Co., 191 Old Colony Avenue, Boston, has filed plans for a new one-story foundry to cost about $16,000.

A one-story service, machine and repair shop will be installed in the proposed motor bus terminal to be erected on Worthington Street, Springfield, Mass., by the Springfield Bus Terminal Association, Inc., recently organized with headquarters at Hartford, Conn., by officials of the Hart-

The Crane Market

INQUIRY for overhead traveling cranes has declined considerably since the first of this month, but sellers are still well occupied with business that appeared in July. While there are few inquiries for locomotive cranes, buyers are apparently slightly more active in this field than in overhead equipment. A Brooklyn, N. Y., contractor has asked for estimating prices on three locomotive cranes, which are to be purchased if he receives the award of a certain large contract. Among overhead crane inquiries still active is the Pennsylvania Railroad request for prices on a 35-ton and 25-ton gantry crane, a 35-ton gantry and a 10-ton overhead crane for the Lehigh Valley Railroad and two 5-ton single I beam, hand power cranes for the Phoenix Utility Co., 71 Broadway, New York. The other cranes for which this company has been in the market for some time are understood to have been decided upon but formal order not yet given. These include two 5-ton monorail hand power hoists, a 12-ton monorail, hand power hoist and two 5-ton monorail electric cranes.

Among recent purchases are:

Atlantic Coast Line Railroad, a 7½-ton, 60-ft. span electric traveling crane from an eastern builder.

General Electric Co., Schenectady, N. Y., two 3-ton cupola chargers from the Shepard Electric Crane & Hoist Co.

Baldwin Locomotive Works, five 5-ton, 46-ft. 7-in. span crane bridges, from an unnamed builder.

Jones & Laughlin Steel Corporation, Pittsburgh, two 15-ton, 87-ft. 9-in. span cranes from the Cleveland Crane & Engineering Co.

ford & Springfield Street Railway Co. The entire project will cost $300,000. J. T. Tambleton is president.

The Gorden & Gerber Co., 20 Summer Street, Chelsea, Boston, operating a metal-working plant, is having plans drawn for a one-story addition, 60 x 150 ft., to cost $45,000. S. S. Eisenberg, 46 Cornhill Street, Boston, is architect.

The Moore Drop Forging Co., Birnie Avenue, Springfield, Mass., has acquired the adjoining plant of the E. Stebbins Mfg. Co., manufacturer of brass faucets, compression bibbs, etc., for $55,000. The Stebbins company has been in receivership for a number of months. The new owner will use a portion of the works for expansion and will install equipment recently purchased at a sale of the plant of the Harley Co., as well as additional machinery. Frank D. Fuller is general manager of the purchasing company.

Fire, Aug. 4, destroyed a portion of the plant of the Stacy Machine Works, Springfield, Mass. An official estimate of loss has not been announced.

The Board of School Commissioners, Stamford, Conn., will install a manual training department in its proposed two-story school on Fairfield Avenue estimated to cost $150,000, for which superstructure will soon be placed under way. Emmens & Abbott, 1 Bank Street, are architects.

The Westinghouse Lamp Co., New York, has disposed of its plant at Middletown, Conn., totaling 73,800 sq. ft., to the Progressive Realty Co., of that city, and will discontinue operations at this point. The purchasing company will lease the property to other industrial interests.

The United Shoe Machinery Corporation, Boston, has acquired a controlling interest in the Hoague-Sprague Corporation, Lynn, Mass., manufacturer of paper boxes and containers with affiliated interests manufacturing patented automatic box-making machinery. The present management of the business will be continued under the direction of H. Morton Hoague and Charles F. Sprague. Expansion is said to be under consideration.

The Draper Corporation, Hopedale, Mass., manufacturer of textile machinery and parts, has awarded a general contract to the W. T. Reed Co., Boston, for its proposed branch plant at Beebe River, N. H., two-stories 100 x 200 ft., to cost $180,000 with equipment. C. H. Whitcher, 814 Elm Street, Manchester, N. H., is architect.

The Watertown Mfg. Co., Watertown, Conn., manufacturer of insulating apparatus, etc., has completed plans for a one-story power house with radial brick stack. Fletcher-Thompson, Inc., Bridgeport, Conn., is architect and engineer.

S. E. Moffie, 51 Cornhill Street, Boston, architect, has plans for a two-story automobile service, repair and garage building, 90 x 120 ft., at Dorchester, estimated to cost $100,000 with equipment.

Detroit

DETROIT, Aug. 10.

WORK has started on a one-story addition to the plant of the Hubbard Spring Co., Pontiac, Mich., manufacturer of automobile springs, estimated to cost $25,000.

Following the recent merger of the Ampco Twist Drill & Tool Co., Detroit, and the Ampco Twist Drill Co., Jackson, Mich., plans are under way for the removal of the works and property of the first noted company to Jackson where the capacity will be increased.

The Schmandt Foundry Co., 6401 Miller Avenue, Detroit, is said to be contemplating the erection of a two-story machine shop adjoining its present works. Frank Teckner is secretary.

The Standard Oilgas Heating Co., Lansing, Mich., organized a few months ago to manufacture oil and gas burning equipment, has begun the erection of a one-story plant to cost $25,000.

The Fisher Body Corporation, General Motors Building, Detroit, has taken over the former plant of the Buick Motor Car Co., totaling about 500,000 sq. ft., and will occupy as an exclusive motor bus manufacturing plant. It is purposed to develop the property into the largest plant of this kind in the country. Additional machinery will be installed.

The Ironwood Auto Service Co., 115 Lowell Street, Ironwood, Mich., has awarded a general contract to Tomlinson & Egan, Ashland, Wis., for a new two-story service, repair and garage building, 60 x 120 ft., to cost $50,000. W. A. Nelson, Seamon Building, is architect.

The Signal Electric Co., Menominee, Mich., has acquired about two acres adjoining its factory and has tentative plans under advisement for expansion.

W. J. Muhlitner, secretary and manager Great Lakes Foundry Sand Co., Detroit, reports steady improvement among the foundries. He says that unfilled orders on hand for molding, core and blast sands are the highest since 1923 and shipments are averaging 45 carloads per day.

St. Louis

ST. LOUIS, Aug. 10.

THE Missouri Pacific Railroad has closed for a large list of tools for various shops, and this buying, together with that recently done by the Mobile & Ohio, has given some of the local machine-tool houses a substantial amount of business.

The Missouri Pacific announces the following purchases: For Sedalia, Mo., shops: 25-ton traveling crane, sash mortiser, pony brake, four double grinders, two 5-ton air hoists, six oil-burning furnaces, one turbo compressor and one lot of pyrometers and equipment, two Ford tractors, portable electric welder, cylinder boring bar, 2-in. double bolt cutter; for North Little Rock, Ark.: 10-ton crane and hoist, combination axle lathe, 27-in. engine lathe, two 19-in. engine lathes, valve setting machine, pony brake, driving-box boring machine, die sinking machine, Geometric chaser grinder, six oil-burning furnaces, one turbo compressor, one lot of pyrometers and equipment, four Ford tractors, one universal test rack, 32-in. crank shaper, 19-in. engine lathe, 54-in. slab miller, two 5-ton air hoists, 84-in. tire boring mill, coach wheel lathe, 3 100-kw. transformers; for Hoisington, Kan.: one 42-in. vertical boring mill; for Coffeyville, Kan.: swing cut-off saw; for Osawatomie, Kan.: 32-in. crank shaper, 2-in. double bolt cutter, 3-ft. radial drill combination punch and shear; for Kansas City, Mo.: two 18-in. engine lathes, combination axle lathe, 3 x 36-in. turret lathe, three double grinders; for St. Louis: two 105-cu. ft. air compressors, two double grinders, combination punch and shear; for Bush, Ill.: 150 hp. boiler, combination punch and shear, 3-ft. radial drill, 32-in. crank shaper, 50-ton hydraulic bushing press; for Monroe, La.: 42-in. vertical drill press and combination punch and shear.

A complete list of the shop equipment purchased by the Mobile & Ohio Railroad, as given out by the road, is as follows: Eleven engine lathes of various sizes, 90-in. driving wheel lathe, 90-in. locomotive axle journal turning lathe, heavy car wheel lathe, vertical boring and turning mill, 36 x 44-in. side head boring mill, three turret lathes, 48 x 48-in.

x 18-ft. planer, 36 x 36-in. x 12-ft. planer, two 5-ft. plain radial drills, two upright drilling machines, staybolt drilling machine, 2-spindle, high speed sensitive drilling machine, 54-in. vertical turret lathe, 800-ton hydraulic wheel press, 100-ton hydraulic bushing press, two draw-cut shapers, two milling machines, internal and link grinder, 2½-in. double-head bolt threading machine, five floor grinders, drill grinder, 18-in. x 30-in. x 96-in. gap grinder, 30-in. x 24-in. x 10-ft. milling machine, oil-burning blacksmith forge, pipe threading and cutting machine, babbitt furnace, hand pipe bending machine, combination crimping and beading machine, combined punch and shear, steel hand bending brake, forging machine, steam hammer, upright strap hammer, upright helve hammer, 5-ft. x 7-ft. 6-in. furnace, two forging furnaces, case hardening furnace, annealing furnace, four blowers, punching machine, shearing machine, flue cleaning machine, bending roll, flanging machine and flue welding machine.

Contract has been awarded by the Coleman Lamp Co., Wichita, Kan., manufacturer of electric lamps, etc., to John Denny, 1451 North Lawrence Street, for its four-story and basement plant, 60 x 90 ft., to cost $60,000. W. V. Street, First National Bank Building, is architect. W. C. Coleman is head.

The Ponath-Banks Mfg. Co., Inc., 5178 Eastern Avenue, St. Louis, is in the market for machinery for a new plant to manufacture electrical appliances, including lathes, drill presses, grinders and other tools.

J. F. Porter, president of the Kansas City Power & Light Co., Fourteenth Street and Grand Avenue, Kansas City, Mo., is at the head of a project to organize a company to construct an airplane manufacturing plant in this vicinity, to cost $500,000.

The Board of Education, Tulsa, Okla., plans the installation of manual training equipment in its proposed three-story Hollywood junior high school at Owen Park, estimated to cost $350,000, for which bids will be asked on general contract this month. Leland I. Shumway, New Wright Building, is architect.

The Buick Motor Co., 504 North Broadway, Oklahoma City, Okla., has plans for a four-story service, repair, parts and garage building, 75 x 140 ft., to cost about $200,000 with equipment. Campbell & Price, 603½ West Main Street, are architects.

The Arkansas Light & Power Co., Pine Bluff, Ark., has plans for an addition to its ice-manufacturing plant at Stuttgart, Ark., to cost $55,000 with equipment.

The American Pipe Line Co., Bartlesville, Okla., an interest of the Empire Refineries, Tulsa, Okla., will construct a new pipe line in Elk and Wilson Counties, Kan., about 60 miles, to cost approximately $1,300,000.

R. E. Scammell, New England Building, Topeka, Kan., architect, has plans for a two-story and basement automobile service, repair and garage building, 125 x 135 ft., to cost $100,000 with equipment.

The Board of Public Works, Kansas City, Kan., has plans for extensions and improvements in the municipal power house and system, including the installation of equipment, to cost in excess of $400,000. Arthur L. Mullergren, Gates Building, is consulting engineer.

The Wilhoit Refining Co., Springfield, Mo., is said to have plans under way for extensions in its oil refinery at Joplin, Mo., including the construction of a new pipe shop, power house and other buildings, and the installation of equipment, estimated to cost $160,000.

Indiana

INDIANAPOLIS, Aug. 10.

PLANS are under way by the Bendix Brake Co., South Bend, Ind., manufacturer of automobile brake equipment, for enlargements and the installation of additional machinery to give employment to more than 200 extra men. The company is a subsidiary of the Bendix Corporation, Chicago, Vincent Bendix, president.

The new plant to be erected by the Indianapolis Pump & Tube Co., National City Bank Building, Indianapolis, at Columbus, Ind., will be used for the manufacture of coaster wagons and kindred equipment. It will remove this division of its works from Connersville, Ind., to the new location, providing additional machinery for increased output. A second unit of same size as the initial building, one-story, 100 x 250 ft., will be constructed at an early date. Quinton G. Noblett is president.

The Marland Refining Co., Hammond, Ind., is arranging for a one-story oil storage and distributing plant, with service and garage building, to cost $60,000. Buckley & Skidmore, Hammond, are architects.

The Continental Corporation, Indianapolis, has leased property at 1310 Brookside Avenue for the manufacture of radio equipment.

The Board of Education, 150 North Meridian Street, Indianapolis, is said to be considering the installation of manual training equipment in its proposed two-story and basement high school at West and Eleventh Streets, estimated to cost $500,000, for which bids will be asked soon on a general contract. Harrison & Turnock, Board of Trade Building, are architects.

William Dohn, Indianapolis, will build a one-story machine shop at 1322 Charles Street and will soon arrange for equipment installation.

The Standard Mfg. & Sales Corporation, Lebanon, Ind., has been organized to manufacture agricultural machinery parts and automobile parts, specializing in clutch friction disks taken over from the Standard Motor Parts Co. It will be in the market for material. W. B. Wallace is president.

Cincinnati

CINCINNATI, Aug. 10.

RAILROAD buying has enlivened the local machine tool market the past week. The Atchison, Topeka & Santa Fe has closed with several Cincinnati builders for engine lathes, a planer and radial drills. The Missouri Pacific also placed an order for engine lathes. It is reported that the New York Central is about to purchase three or four engine lathes. A local manufacturer recently booked an order from the Mobile & Ohio Railroad for several shapers. Pending lists of carriers indicate that liberal purchases are contemplated. The Delco Light Co., Dayton, Ohio, which has begun a $2,000,000 expansion program, part of which calls for new equipment, has bought four steel press brakes from the Cincinnati Shaper Co.

Activity of planer manufacturers has increased. Pending purchases are numerous, but builders are experiencing difficulty in closing. This is attributed mainly to the interference of the vacation season. A local plant booked three orders for turret lathes from the New England territory, a district which has been comparatively inactive lately. Lathe manufacturers report a slightly accelerated demand. The Niles-Bement-Pond Co. received an order from the C. F. Braun Co., Alhambra, Cal., for a 60-in. x 21-ft. engine lathe. Sales of radial and upright drills have been fair. Milling machine orders from the automotive field have attained a considerable volume.

The Burkett Closed Body Co., Dayton, Ohio, will erect a $12,000 building at 1330 East First Street.

The Superior Gas Engine Co., Springfield, Ohio, has awarded a general contract to the Bellefontaine Bridge Co., Bellefontaine, Ohio, for a two-story and basement addition, 60 x 324 ft., to cost $300,000 with equipment. P. J. Shovlin is president.

The National Ice & Fuel Co., Cincinnati, has acquired property at Bank and Kindel Streets for a new ice-manufacturing and refrigerating plant, estimated to cost $300,000. The equipment will be electrically-operated. The company's present plant has been sold to the city. William C. Gels is president.

The Wallsend Coal Co. of Delaware, Inc., Wallsend, Ky., has plans for extensions and improvements in its coaling station, used by the Louisville & Nashville Railroad, with the installation of additional equipment estimated to cost $65,000. J. D. Roper is in charge.

The Willingham Lumber Co., Chattanooga, Tenn., will rebuild the portion of its mill and woodworking plant destroyed by fire Aug. 2, with loss of $100,000 including machinery.

F. K. Boggs, Inc., Dayton, Ohio, local representative for the Dodge automobile, has awarded a general contract to the Ostendorf-Harris Co., local, for a new two-story service, repair and garage building, 73 x 188 ft., to cost $80,000.

The International Utilities Corporation, operating the Lexington Utilities Co., Lexington, Ky., and other properties, is disposing of a preferred stock issue of $2,375,000, a portion of the proceeds to be used for extensions in plants and system.

The Board of Education, Memphis, Tenn., has taken bids for the erection of a new industrial high school for negroes, estimated to cost $250,000. Regan & Weller, Bank of Commerce Building, are architects.

The American Steel Abrasives Co., Galion, Ohio, has been organized with $40,000 capital stock to manufacture

iron and steel abrasives. It is building a plant and expects to begin operations about Oct. 1. Its products will include chilled shot and crushed grit.

The U. N. Auto Parts Co., Toledo, Ohio, has been organized with a capital of $20,000 to manufacture automobile parts and accessories. Frank J. McManus is one of the principals.

The Ferro Enamel Supply Co., Cleveland, is installing a Bonnot overhead charging fork and double unloader in the enameling plant of the Malleable Iron Range Co., Beaver Dam, Wis.

Pittsburgh

PITTSBURGH, Aug. 10.

MACHINE tool sales in this district so far this month have been somewhat fewer than in the same period in July, but this is ascribed to the absence of purchasing officials on vacations rather than to a falling in demand. Outside of the quarterly list of the Westinghouse Electric & Mfg. Co., most of the business pending consists of one or two items, but the total is fairly sizable. The Westinghouse company was a recent buyer of six open-side planers. The Iron City Sanitary Mfg. Co. is enlarging its plant at Zelienople, Pa., and is a possible purchaser of new equipment. The Armstrong Steel Co., successor to the LeMoyne Steel Co., Monongahela City, Pa., is to add some centerless grinders and bar straighteners to its present equipment.

The E. & R. Removable Barrel Head Co., Erie, Pa., has acquired 24,000 sq. ft. in the former plant of the Erie Motor Truck Co. for the manufacture of removable heads for steel barrels.

The Joseph Reid Gas Engine Co., Oil City, Pa., manufacturer of gas engines and oil well equipment, has filed plans for a one-story brick and steel addition.

The Pittsburgh Plate Glass Co., Frick Building, Pittsburgh, has awarded a general contract to Lyman S. Peck, Inc., Empire Building, for a three-story and basement addition, 48 x 70 ft., to its plant at Creighton, Pa. H. S. Heickert is chief engineer.

The Pinkerton Motor Co., 1309 Irwin Street, Pittsburgh, will erect a service, repair and garage building at 1928 Brighton Road, to cost $100,000 with equipment.

The Central Pipe & Supply Co., P. O. Box 1099, Charleston, W. Va., has inquiries out for a duplex air compressor, 6 x 6 in., belt-driven.

The Board of Education, Bluefield, W. Va., plans the installation of manual training equipment in the proposed new Beaver high school estimated to cost $250,000, for which foundations will be laid at once. Mahood & Van Dusen, Law and Commerce Building, are architects.

The Martinsburg Independent School District, Martinsburg, W. Va., plans the installation of manual training equipment in a proposed local high school to cost approximately $300,000, for which plans will be drawn by Brampton & Bowers, 412-14 Eleventh Street, architects.

The National Biscuit Co., Pennsylvania Avenue and Lambert Street, Pittsburgh, has asked bids on a general contract for a three-story addition to its service, repair and garage building, to cost $75,000. F. F. Barkow is local manager.

The Guyan Machine Shops, Logan, W. Va., machinery dealer, has inquiries out for automatic dies, ⅝ to 1¾ in., with six or more cutters; also, for a shear and punch to handle plate up to ¼-in. thick.

South Atlantic States

BALTIMORE, Aug. 10.

THE Republic Boiler & Radiator Works, Union Avenue, Baltimore, has filed plans for a one-story addition, 80 x 120 ft., for which a general contract recently was let to the Olt Construction Co., Baltimore.

The Southside Virginia Power Co., South Boston, Va., recently organized, is contemplating the construction of a hydroelectric generating plant on the Meherrin and Dan Rivers, to cost about $200,000 with transmission system. John F. Penrose, 240 West Susquehanna Street, Philadelphia, is secretary.

Wallis Stacy, Stacy, Va., is desirous of getting in touch with a machine shop in position to contract for the manufacture of a saw tool and clamp.

The Phoenix Stone Co., Arrington, Va., has begun the construction of a new mill, one-story, 134 x 256 ft., for which a contract recently was let to the H. K. Ferguson Co., Cleveland.

Samuel T. Williams, 8 East Lexington Street, Baltimore, mechanical engineer, has inquiries out for a crusher or grinder for reducing iron oxide ore to powder.

The Board of Water Commissioners, Macon, Ga., is said to be arranging an early call for bids for a 500-hp. boiler for waterworks service, including auxiliary equipment.

The Thomasville Concrete Pipe Co., Thomasville, Ga., recently organized, has taken over the local plant of the Dawes Construction Supply Co., and proposes to remodel for a new works. W. B. Cochrane and W. F. Scott, both of Thomasville, head the company.

The City Council, Salisbury, Md., is asking bids until Aug. 20 for six centrifugal pumping units, with motors, self-starters, etc.; also for one low service centrifugal pump for priming system; switchboard and instruments, motor controls, etc., for the municipal waterworks.

The O. L. Williams Top & Panel Co., Sumter, S. C., recently organized with a capital of $1,000,000, is said to be planning the construction of a furniture manufacturing plant, with power house, to cost about $200,000 including equipment.

The American Oil Co., Broad Creek Road, Portsmouth, Va., is reported to be planning a new storage and distributing plant, to cost $75,000 with equipment.

R. P. Johnson, Wytheville, Va., machinery dealer, is in the market for a 30-hp. vertical engine complete with accessories.

The Board of City Commissioners, Raleigh, N. C., is taking bids until Aug. 26 for equipment for the municipal waterworks, including two motor-driven centrifugal pumps, each with capacity of 2100 gal. per min., with starting compensators and auxiliary equipment. William C. Olsen, Raleigh, is engineer. C. C. Page is commissioner of public works.

The Washington Suburban Sanitary Commission, Washington Grove, Montgomery County, Md., plans the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks and sewage plants at Gaithersburg and Washington Grove, to cost $350,000.

The Star Furniture Co., Lenoir, N. C., has plans for a two-story factory, 75 x 125 ft., to replace the portion of its plant destroyed by fire several months ago, to cost $80,000 with equipment.

The Hackley Morrison Co., 1708 Lewis Street, machinery dealer, is in the market for a double-drum hoist, with or without boiler, and accessory equipment. It has inquiries out for a number of machine tools, including 24-in. upright drill, one 24-in. hacksaw; one shaper, 18 to 20 in.; screw-cutting lathe, 18 and 20 in., and a universal No. 2 milling machine.

The W. H. Bond Co., Raleigh, N. C., has been incorporated with $25,000 capital stock to do ornamental iron work and warehousing of steel building products. It contemplates erecting a plant later. W. H. Bond is secretary-treasurer.

The Grizzard Mfg. Co., Drewryville, Va., organized with $100,000 capital stock to manufacture automobile accessories, plans to erect a building 50 x 100 ft. of steel construction. No awards have been made. H. E. Grizzard is president.

Gulf States

BIRMINGHAM, Aug. 10.

WORK will soon begin on a new mill on North Ninth Avenue, Birmingham, by the Birmingham Sash & Door Co., 1900 North Sixteenth Street, to be 225 x 275 ft., to cost $75,000. The company will remove machinery from its present mill to the new plant and install considerable additional equipment. J. F. Watson is president.

The Comal Power Co., a subsidiary of the San Antonio Public Service Co., San Antonio, Tex., is concluding negotiations for the purchase of the hydroelectric power plant of the Landa Electric Light & Power Co., New Braunfels, Tex., and other properties, including a power site for a proposed new hydroelectric generating plant. The entire project will cost $1,500,000. Edward H. Kifer is vice-president and general manager.

The Reed Roller Bit Co., Mack Street and Avenue Q, Houston, Tex., manufacturer of oil well tools, has been acquired by new interests headed by S. P. Farish, Humble Building, and will be reorganized. Tentative plans are under advisement for expansion with the installation of additional equipment.

The City Council, Floresville, Tex., will install a pumping plant in connection with proposed extensions and improvements in the municipal waterworks for which bonds for $40,000 have been approved.

The Econfina Power Co., Panama City, Fla., plans the construction of a hydroelectric power house on Econfina Creek, to cost $300,000 including transmission system. Ira L. Hutchinson heads the company.

R. E. Boggs, Age-Herald Building, Birmingham, machinery dealer, has inquiries out for a steam shovel, type B Erie, and miscellaneous equipment.

The Gulf Refining Co., Houston, Tex., with headquarters in the Frick Annex, Pittsburgh, will soon begin the construction of a new pipe line in eastern Texas, about 125 miles long, to cost in excess of $1,200,000.

The Louisiana Electric Co., Jennings, La., has plans for an addition to its power house, including the installation of two steam-operated units and other equipment.

J. H. Johnson, Bradenton, Fla., architect, has plans under way for a three-story automobile service, repair and garage building, 100 x 100 ft., to cost $80,000 with equipment.

The Krueger Machine Co., East Houston Street, San Antonio, Tex., has acquired the plant of the Stroud Motor Co., including foundry, machine shop and other departments, and will remodel for the manufacture of waterworks and refrigerating machinery. Operations will begin soon.

The City Council, Greenville, Tex., is asking bids until Aug. 20 for equipment for extensions in the municipal waterworks, including one 20,000,000-gal. per day capacity pumping unit with accessories. H. Rush, Greenville, is engineer in charge.

M. A. Marcus, 2404 Tenth Street, Wichita Falls, Tex., is arranging for the early erection of a new ice-manufacturing and cold storage plant at Littlefield, Tex., to cost $45,000 with equipment.

H. G. Redstone, city clerk, Vero, Fla., is taking bids until Aug. 27 for pumping machinery and other equipment for a sewage disposal plant. Carter & Damerow, Seminole Building, are engineers.

The Dedman Foundry & Machine Co., 1518 Spring Street, Houston, Tex., is arranging for the erection of a new one-story plant to cost about $21,000.

The Texas & Pacific Railroad Co., Texas & Pacific Building, Dallas, Tex., is planning to proceed with superstructures for its proposed engine house and machine repair shops at Shreveport, La. E. F. Mitchell is chief engineer.

The Brewton Veneer Co., Brewton, Ala., is said to be arranging for the early rebuilding of the portion of its mill recently destroyed by fire, with loss estimated at $50,000.

W. M. Smith & Co., First Avenue, Birmingham, machinery dealers are inquiring for one 500-kw. a.c., turbine-driven generator, or larger capacity, and accessory equipment.

Pacific Coast

SAN FRANCISCO, Aug. 5.

BIDS are being taken by the John A. Roebling's Sons Co., 646 Folsom Street, San Francisco, manufacturer of cables, wire rope, etc., for its proposed two-story plant to cost $250,000, with equipment. Frederick W. Quandt, Humboldt Bank Building, is architect. Headquarters of the company are at Trenton, N. J.

The General Electric Co., through its Seattle, Wash., offices, has secured a contract for all motors and motor controls for the operation of the Long-Bell Lumber Co., at Longview, Wash. The order includes 400 motors ranging from 3 to 300 hp.

The K. C. B. Electric Mfg. Co., Forty-second Street and Fourteenth Avenue, Sacramento, Cal., has tentative plans for extensions for the manufacture of storage batteries, estimated to cost $20,000 with equipment. R. E. Harris is president.

The Santa Maria Valley Railroad Co., Santa Maria, Cal., has awarded a general contract to W. A. Bechtel Co., San Francisco, for a new boiler shop, machine shop and engine house, 75 x 170 ft.

The Ivey-Dale-Owen Co., Tucson, Ariz., has preliminary plans for a new power house in connection with a proposed irrigation project in the vicinity of Continental, Ariz., estimated to cost $100,000.

The St. Helens Pulp & Paper Co., St. Helens, Ore., recently organized by W. P. Hawley, president Hawley Pulp & Paper Co., Oregon City, Ore., and associates, has preliminary plans for its proposed local mill, including power house and machine shop, estimated to cost $1,000,000 with machinery.

The Department of Public Service, Bureau of Light and Power, Los Angeles, has plans for two one-story automatic power substations at 11211 Missouri Street and 856 West Ninety-first Street, respectively, estimated to cost $50,000, with equipment.

The Wheeler-Olmstead Co., Klamath Falls, Ore., operating a lumber mill, is said to be planning the construction of a new planing mill and lumber remanufacturing plant to cost $85,000 with machinery. J. M. Bedford is general manager.

The Pacific Gas & Electric Co., 245 Market Street, San Francisco, is contemplating the construction of four new hydroelectric generating plants on the Pitt River, in the northeastern section of the State, to cost more than $20,000,000 with transmission system. It will soon begin the erection of an automatic power substation at Cottonwood, Cal., to cost approximately $300,000 with equipment.

The Oregon Macaroni Co., 55 East Eighth Street, North, Portland, Ore., has awarded a contract for a two-story plant addition to cost $25,000.

Canada

TORONTO, Aug. 10.

MACHINE tool sales have fallen off somewhat the past week, but the general volume of business is holding up well for this season of the year. Dealers and builders are looking forward to a greatly improved demand toward the end of the month and it is expected that the tool displays at the Canadian National Exhibition, which will open in about two weeks, will stimulate sales. The automotive industry is a steady buyer of tools for replacement purposes, although there is very little demand from this source for new works. Orders are also coming from pulp and paper mills and electric power plants.

W. H. Maund, secretary-treasurer, Temiskaming & Northern Ontario Railway Commission, is receiving bids for the construction of a power house at North Bay, Ont. S. B. Clement, North Bay, Ont., is chief engineer.

The Dominion Construction Co., Ltd., 14 Wellington Street East, Toronto, has the general contract for power development at Grand Falls for the New Brunswick Electric Power Commission, 63 Prince William Street, St. John, N. B., to cost $1,546,556.

The Great Lakes Paper Co., Fort William, Ont., will start work in September on the construction of a paper mill adjoining its pulp mill. It will cost approximately $2,500,000 and will be completed in 1926.

The Port Alfred Pulp & Paper Corporation will start work immediately on a newsprint mill at Port Alfred, Que., to have a daily capacity of 200 tons. Contract for the construction has been awarded to the Foundation Co. and will cost approximately $3,500,000. H. S. Taylor & Co. are consulting engineers. Power for the mill will be supplied by the Duke Price Co. George McKee was recently elected president of the company.

The North Vancouver Sawmills, Ltd., Esplanade East and St. Andrews Avenue, North Vancouver, B. C., are planning to rebuild its sawmill at a cost of $100,000. Considerable equipment will be required.

Foreign

THE Swedish Chamber of Commerce of the United States of America, 2 Broadway, New York, has received an inquiry (201) from a company in Sweden desiring to get in touch with American manufacturers and exporters of automobile equipment and accessories.

The State Electricity Commission, Victoria, Melbourne, Australia, is asking bids until Sept. 21 for 250 kva., 22,000-volt transformers and spare parts. Specifications on file at the offices of the Bureau of Foreign and Domestic Commerce, Custom House, New York, and Chicago.

Officials of the Pan-American Petroleum & Transport Co., 120 Broadway, New York, are forming a new company to take over the Lago Petroleum Corporation, operating in Mexico. The present Lago company has a daily production of 16,000 bbl. of oil and the new owner is said to have plans for considerable increase in output.

The International Railways of Central America, San Salvador, has preliminary plans for rebuilding the portion of its locomotive and car repair shops at Miramba, Central America, destroyed by fire Aug. 5, with loss estimated in excess of $400,000 with machinery.

Sam Damon, P. O. Box 1563, Alexandria, Egypt, is in the market for a quantity of brass and iron bedsteads.

The American Chamber of Commerce in Belgium, 46-48

Rue de Naples, Brussels, Belgium, has received an inquiry from one of its members desiring to get in touch with American manufacturers of aluminum ingots.

Industrial News Notes

The C. R. Talbott Co., Cincinnati, jobber of cold drawn steel, has been appointed selling agent for the Peerless Drawn Steel Co., Massillon, Ohio, and the Standard Gauge Steel Co., Beaver Falls, Pa., in southern Ohio, eastern Indiana and northern Kentucky. The company has been the representative of the Union Drawn Steel Co. in Cincinnati territory for more than 30 years.

The recently organized Hoopes & Townsend Corporation has acquired the business of the American Bolt Corporation and the Hoopes & Townsend Steel Co. The company will maintain headquarters at 1330 Buttonwood Street, Philadelphia, and the various divisions are located as follows: Hoopes & Townsend Works, Philadelphia; Bayonne Bolt & Nut Works, Bayonne, N. J.; Standard Bolt & Nut Works, Columbus, Ohio; Michigan Bolt & Nut Works, Detroit; Boss Bolt & Nut Works, Chicago. President Justin C. Burns will be located at the central office and headquarters of secretary-treasurer Harley Burns will be at Columbus.

A. Milne & Co., steel and iron merchants, New York, have placed a stock of FJAB hollow and solid drill steel, tool steel and die steel at Kansas and Division Streets, San Francisco, to take care of the demands in the West. Inquiries in that locality should be addressed to the Dunham, Carrigan & Hayden Co., San Francisco.

The Coast Machinery Corporation, 464-66 East Third Street, Los Angeles, Cal., has been formed as distributor in California for engines made by the Climax Engineering Co., Clinton, Iowa; also for Curtis vertical compressors, Bury horizontal compressors, Deming pumps, Erie dredging centrifugal pumps, and Cushman engines. It will also represent the Stover Steel Tank Mfg. Co., Freeport, Ill., will handle commercial water softeners and also represent the Concrete Surfacing Machinery Co. Official personnel consists of Edward Crowley, formerly director of sales, Climax Engineering Co., president; G. W. Dulany, Jr., vice-president, and H. B. Grandin, secretary-treasurer.

J. H. Levin has reorganized the Atlas Iron & Metal Co., Eighth and Wyoming Streets, Kansas City, Mo., wholesale dealer in scrap iron, metals, etc., for many years. J. C. Lewin, formerly connected with the Acme Scrap Iron & Metal Co., has bought half interest in the company.

The Bethlehem Steel Corporation, Bethlehem, Pa., has disposed of its former war-time plant at Redington, Pa., consisting of 48 buildings on a tract of 37 acres of land, to the McEvoy Co., Pennsylvania Building, Philadelphia, which will dismantle the works and dispose of the equipment.

Orders of the Westinghouse Electric & Mfg. Co. for the quarter ended June 30, totaled $44,432,200, compared with $40,031,000 for the same period in 1924.

Trade Changes

E. J. Lavino & Co., Philadelphia, have opened a Chicago office at 723 Continental-Commercial Bank Building, a branch of its Pittsburgh office, which will be in charge of H. W. Grigsby, who has been in the company's Pittsburgh office since it was opened about four years ago. He will handle ferroalloys sales and H. W. Pigott, who will be associated with him, will handle refractories sales.

The Union Drawn Steel Co., Beaver Falls, Pa., announces the appointment of Pfaff & Bathke, Pioneer Building, St. Paul, Northwestern sales representatives.

H. C. Woodside & Co., 128 North Wells Street, Chicago, have been appointed representatives in the Chicago district for the Keystone Steel & Wire Co., Peoria, Ill. The Woodside company also represents the Crawfordsville Wire & Nail Co., Crawfordsville, Ind., and the Iowa Gate Co., Cedar Falls, Iowa. Mr. Woodside for 18 years was connected with the Pittsburgh Steel Co. and for three years was sales manager of the Northwestern Barb Wire Co., Sterling, Ill.

Cornell Iron Works, Inc., manufacturer of rolling steel shutters and doors, has moved its main office and factory to 71-79 Marion Street, Long Island City, N. Y.

The Roller-Smith Co., 233 Broadway, New York, has appointed the Tennessee Engineering & Sales Co., 510 Burwell Building, Knoxville, Tenn., agent in Tennessee and Kentucky within a working radius of Knoxville.

The Empire Milking Machinery Co. will be moved from Bloomfield, N. J., to Rochester, N. Y., and will occupy a part of the plant of the Kellogg Mfg. Co., 97 Humboldt Street, that city.

Industrial Finances

The Penn Seaboard Steel Corporation reports a net loss for the second quarter of $25,073, before depreciation, comparing with a net loss of $123,237 in the same period last year. For the six months of this year the net loss amounted to $81,947, against a net loss of $140,743 in the first half of 1924. There was a considerable drop in net sales which were $1,099,892 against $1,700,269 in the first six months of 1924.

Mack Trucks, Inc., shows net profit in the second quarter of $2,898,979, after charges, depreciation and Federal taxes. This compares with net profit of $1,754,869 in the second quarter of 1924. For the six months of this year, earnings were $4,653,848 compared with $3,450,616 in the first half of 1924.

The Mystic Iron Works, Everett, Mass., a subsidiary of the Massachusetts Gas Companies, Boston, has increased its capitalization from $2,000,000 to $3,000,000, authorizing 10,000 additional shares, to be sold for cash at par $100. The company was organized in 1923. Its shares are owned by the New England Fuel & Transportation Co., which issues an equal amount of its stock to the Massachusetts Gas Companies. The blast furnace plant has $5,000,000 in notes outstanding.

American Steel Foundries Profits Larger

The American Steel Foundries reports net profits for the first half of $2,788,347, after charges, depreciation and Federal taxes. This compares with $2,348,664 in the first half of 1924. Net profit for the June quarter of this year is $1,399,711, against $1,388,636 in the preceding quarter and $1,438,731 in the second quarter of 1924. President R. P. Lamont stated that operations are at 50 to 60 per cent of capacity and that the outlook indicates a further reduction in the next month or so, there being only a small volume of new business in sight.

New Trade Publications

Reversing and Controlling System for Regenerative Furnaces. Morgan Construction Co., Worcester, Mass. Ten-page booklet featuring the Isley system of control for open-hearth and other regenerative furnaces, in which induced draft is used to obtain uniformity of conditions.

Twist Drills.—Buckeye Twist Drill Co., Alliance, Ohio. Catalog No. 7, 98 pages and cover, gives complete data regarding twist drills of all types, also information regarding reamers and special tools.

Protective Clothing.—Industrial Gloves Corporation, 1213 Fullerton Avenue, Chicago. A 24-page booklet illustrating gloves, mittens, hand pads, leggings, aprons, arm protectors, spats and complete suits of leather or asbestos fabric for protection against burns and injuries.

The British Empire Steel Corporation, Halifax, Nova Scotia, announced to Premier Rhodes on Aug. 6 that it had accepted the Nova Scotia Government's proposals for a settlement of the coal strike which has obstructed production since February. On the previous day the miners voted to resume work under the Government's proposals.

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Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general headings of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in. base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.30c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.65c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	7.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds and hex	4.00c.
Squares and flats	4.50c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	3.70c. to 3.95c.	.....
Nos. 22 and 24	3.75c. to 4.20c.	4.35c.
No. 26	3.80c. to 4.25c.	4.40c.
No. 28*	3.90c. to 4.35c.	4.50c.
No. 30	4.10c. to 4.55c.	.....

Galvanized

	Per Lb.
No. 14	4.00c. to 4.45c.
No. 16	4.15c. to 4.60c
Nos. 18 and 20	4.30c. to 4.75c.
Nos. 22 and 24	4.45c. to 4.90c.
No. 26	4.50c. to 5.05c.
No. 28*	4.90c. to 5.35c.
No. 30	5.40c. to 5.85c.

*No. 28 lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
½ in. Butt	46	29	½ in. Butt	4	+19
¾ in. Butt	51	37	¾ in. Butt	11	+ 9
1-3 in. Butt	53	39	1-1½ in. Butt.	14	+ 6
2½-6 in. Lap	48	35	2-in. Lap	5	+14
7 & 8 in. Lap	44	17	3-6 in. Lap	11	+ 6
11 & 12 in. Lap.	37	12	7-12 in. Lap.	3	+16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron,
72½, 25, 10 and 5 per cent off list

Steel Wire

BASE, PRICE† ON NO. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c.
Annealed, soft	4.50c.
Galvanized, annealed	5.15c.
Coppered, basic	5.15c.
Tinned, soft Bessemer	6.15c.

†Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	18⅞c. to 19⅞c.
High brass wire	19⅜c. to 20⅜c.
Brass rods	16⅝c. to 17⅝c.
Brass tube, brazed	26⅞c. to 27⅞c.
Brass tube, seamless	23½c. to 24½c.
Copper tube, seamless	24½c. to 25½c.

Copper Sheets

Sheet copper, hot rolled, 22c. to 23c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14x20	
Grade "AAA"	Grade "A"		Prime Seconds
Charcoal 14x20	Charcoal 14x20	80 lb.	$6.15 $5.90
IC	$11.25 $8.85	90 lb.	6.30 6.05
IX	12.85 10.85	100 lb.	6.45 6.20
IXX	14.40 12.55	IC	6.65 6.40
IXXX	15.75 13.85	IX	7.85 7.60
IXXXX	17.00 15.05	IXX	9.00 8.75
		IXXX	10.35 10.10
		IXXXX	11.35 11.10

Terne Plates

8 lb. coating, 14 x 20

100 lb.	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire-door stock	9.00 to 10.00

Tin

Straits, pig	62c.
Bar	65c. to 67c.

Copper

Lake ingot	16¾c.
Electrolytic	16½c.
Casting	16 c.

Spelter and Sheet Zinc

Western spelter	9¼c.
Sheet zinc, No. 9 base, casks	12½c. open 13c.

Lead and Solder*

American pig lead	9¾c. to 12¼c.
Bar lead	12c.
Solder, ½ and ½ guaranteed	40c.
No. 1 solder	37c.
Refined solder	30½c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	20c. to 21c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	38c.

Old Metals

Business is active and values are firm. Dealers' buying prices are as follows:

	Cents Per Lb
Copper, heavy crucible	12.25
Copper, heavy wire	11.75
Copper, light bottoms	9.75
Brass, heavy	7.25
Brass, light	6.25
Heavy machine composition	9.25
No. 1 yellow brass turnings	8.50
No. 1 red brass or composition turnings	8.50
Lead, heavy	7.25
Lead, tea	6.00
Zinc	4.50
Cast aluminum	17.00
Sheet aluminum	17.00